

Aristotle

ON DEFINITION

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Introduction

On Sophistical Refutations

by Aristotle 350 BC

That some reasonings are genuine, while others seem to be so but are not, is evident. This happens with arguments, as also elsewhere, through a certain likeness between the genuine and the sham. For physically some people are in a vigorous condition, while others merely seem to be so by blowing and rigging themselves out as the tribesmen do their victims for sacrifice; and some people are beautiful thanks to their beauty, while others seem to be so, by dint of embellishing themselves. So it is, too, with inanimate things; for of these, too, some are really silver and others gold, while others are not and merely seem to be such to our sense; e.g. things made of litharge and tin seem to be of silver, while those made of yellow metal look golden. In the same way both reasoning and refutation are sometimes genuine, sometimes not, though inexperience may make them appear so: for inexperienced people obtain only, as it were, a distant view of these things. For reasoning rests on certain statements such that they involve necessarily the assertion of something other than what has been stated, through what has been stated: refutation is reasoning involving the contradictory of the given conclusion. Now some of them do not really achieve this, though they seem to do so for a number of reasons; and of these the most prolific and usual domain is the argument that turns upon names only. It is impossible in a discussion to bring in the actual things discussed: we use their names as symbols instead of them; and therefore we suppose that what follows in the names, follows in the things as well, just as people who calculate suppose in regard to their counters. But the two cases (names and things) are not alike. For names are finite and so is the sum-total of formulae, while things are infinite in number. Inevitably, then, the same formulae, and a single name, have a number of meanings. Accordingly just as, in counting, those who are not clever in manipulating their counters are taken in by the experts, in the same way in arguments too those who are not well acquainted with the force of names misreason both in their own discussions and when they listen to others. For this reason, then, and for others to be mentioned later, there exists both reasoning and refutation that is apparent but not real. Now for some people it is better worth while to seem to be wise, than to be wise without seeming to be (for the art of the sophist is the semblance of wisdom without the reality, and the sophist is one who makes money from an apparent but unreal wisdom); for them, then,

it is clearly essential also to seem to accomplish the task of a wise man rather than to accomplish it without seeming to do so. To reduce it to a single point of contrast it is the business of one who knows a thing, himself to avoid fallacies in the subjects which he knows and to be able to show up the man who makes them; and of these accomplishments the one depends on the faculty to render an answer, and the other upon the securing of one. Those, then, who would be sophists are bound to study the class of arguments aforesaid: for it is worth their while: for a faculty of this kind will make a man seem to be wise, and this is the purpose they happen to have in view.

Plato and Aristotle

There are so many differences between the ideas presented by Plato in his dialogs and Aristotle in his writings that it is often difficult to imagine how Aristotle could have come away from such a long discourse with Plato and yet not be nearer to comprehending the faults in his reasoning. However, it is Aristotle's reflections and conclusions that give one a broader field by which to think about the topic of definition. The answers to all of his questions are incredibly simple, yet he does not appear to have discovered them. His understanding of what a subject and predicate was caused him to error throughout his work. His conception actually stands in sharp contrast to Plato's understanding, the work Parmenides being designed to lead the reader into abstracting the principles of predication.

What is interesting, though, are the generations who could do no better than to repeat Aristotle and not have a clue as to Plato's meaning.

For me, reading popular philosophers, popular texts books, is a painful experience. I approach it as a study in aberrant psychology. Reading Aristotle is painful—he is very confused, and long winded. Aristotle, when dealing with the principles of Metaphysics, was, a fool.

I am not going to footnote the entire text, I have limited patience. I used a word macro to abstract these quotes. I use the macro method in order to pull out certain words and trace them through entire works.

Aristotle On Definition

Posterior Analytics: But **induction** is impossible for those who have not **sense-perception**. For it is **sense-perception** alone which is adequate for grasping the particulars: they cannot be objects of scientific knowledge, because neither can universals give us knowledge of them without induction, **nor can we get it through induction without sense-perception.**~

Induction too will sufficiently convince us of this difference; for never yet by defining anything—essential attribute or accident—did we get knowledge of it.

Posterior Analytics:

Posterior Analytics: Definition is a ‘thesis’ or a ‘laying something down’, since the arithmetician lays it down that to be a unit is to be quantitatively indivisible; but it is not a hypothesis, for to define what a unit is is not the same as to affirm its existence.

Posterior Analytics: The same is true of definitions, since a definition is either a primary premise or a conclusion of a demonstration, or else only differs from a demonstration in the order of its terms.

Posterior Analytics: Definitions require only to be understood, and this is not hypothesis—unless it be contended that the pupil’s hearing is also an hypothesis required by the teacher.

Posterior Analytics: A further distinction is that all hypotheses and illegitimate postulates are either universal or particular, whereas a definition is neither.¹

Posterior Analytics: Induction too will sufficiently convince us of this difference; for never yet by defining anything—essential attribute or accident—did we get knowledge of it. Again, if to define is to acquire knowledge of a substance, at any rate such attributes are not substances.

It is evident, then, that not everything demonstrable can be defined. What then? Can everything definable be demonstrated, or not? There is one of our previous arguments which covers this too. Of a single thing quâ single there is a single scientific knowledge. Hence, since to know the demonstrable scientifically is to possess the demonstration of it, an impossible consequence will follow:—possession of its definition without its demonstration will give knowledge of the demonstrable.

Moreover, the basic premises of demonstrations are *definitions*, and it has already been shown that these will be found *indemonstrable*; either the basic premises will be demonstrable and will depend on prior premises, and the regress will be endless; or the primary truths will be *indemonstrable definitions*.

But if the definable and the demonstrable are not wholly the same, may they yet be partially the same? Or is that impossible, because there can be no demonstration of the definable? *There can be none, because definition is of the essential nature or being of*

¹ “Besides, every definition is always universal and commensurate:” **Posterior Analytics:**

something², and all demonstrations evidently posit and assume the essential nature—mathematical demonstrations, for example, the nature of unity and the odd, and all the other sciences likewise. *Moreover, every demonstration proves a predicate of a subject as attaching or as not attaching to it*, but in definition one thing is not predicated of another; we do not, e.g. predicate animal of biped nor biped of animal, *nor yet figure of plane—plane not being figure nor figure plane*³. Again, to prove essential nature is not the same as to prove the fact of a connection. Now definition reveals essential nature, demonstration reveals that a given attribute attaches or does not attach to a given subject; but different things require different demonstrations—unless the one demonstration is related to the other as part to whole.

So it emerges that not all the definable is demonstrable nor all the demonstrable definable; and we may draw the general conclusion that there is no identical object of which it is possible to possess both a definition and a demonstration. It follows obviously that definition and demonstration are neither identical nor contained either within the other: if they were, their objects would be related either as identical or as whole and part.

Posterior Analytics: 1 How then by definition shall we prove substance or essential nature? We cannot show it as a fresh fact necessarily following from the assumption of premises admitted to be facts—the method of demonstration: we may not proceed as by induction to establish a universal on the evidence of groups of particulars which offer no exception, because induction proves not what the essential nature of a thing is but that it has or has not some attribute. *Therefore, since presumably one cannot prove essential nature by an appeal to sense perception or by pointing with the finger, what other method remains?*

2 To put it another way: how shall we by definition prove essential nature? He who knows what human—or any other—nature is, must know also that man exists; for no one knows the nature of what does not exist—one can know the meaning of the phrase or name ‘goat-stag’ but not what the essential nature of a goat-stag is. But further, if definition can prove what is the essential nature of a thing, can it also prove that it exists? And how will it prove them both by the same process, since definition exhibits one single thing and demonstration another single thing, and what human nature is and the fact that man exists are not the same thing? Then too we hold that it is by demonstration that the being of everything must be proved—unless indeed *to be* were its essence; and, since being is not a genus, it is not the essence of anything. Hence the *being* of anything as fact is matter for demonstration; and this is the actual procedure of the sciences, for the geometer assumes the meaning of the word triangle, but that it is possessed of some attribute he proves. What is it, then, that we shall prove in defining essential nature? Triangle? In that case a man will know by definition what a thing’s nature is without knowing whether it exists. But that is impossible.

Posterior Analytics: Moreover it is clear, if we consider the methods of defining actually in use, that definition does not prove that the thing defined exists: since even if there does actually exist something which is equidistant from a center, yet why should the thing

² It would have been easier to see Plato here, if he would have used “first principle” instead of “essential nature.”

³ This seems to have been missed by geometers. This follows from the principles of predication.

named in the definition exist? Why, in other words, should this be the formula defining circle?⁴ One might equally well call it the definition of mountain copper. For definitions do not carry a further guarantee that the thing defined can exist or that it is what they claim to define: one can always ask why.

Posterior Analytics: Since, therefore, to define is to prove either a thing's essential nature or the meaning of its name, we may conclude that *definition, if it in no sense proves essential nature, is a set of words signifying precisely what a name signifies*. But that were a strange consequence; for (1) both what is not substance and what does not exist at all would be definable, *since even non-existents can be signified by a name*; (2) all sets of words or sentences would be definitions, since any kind of sentence could be given a name⁵; so that we should all be talking in definitions, and even the Iliad would be a definition: (3) no demonstration can prove that any particular name means any particular thing: neither, therefore, do definitions, in addition to revealing the meaning of a name, also reveal that the name has this meaning. *It appears then from these considerations that neither definition and syllogism nor their objects are identical, and further that definition neither demonstrates nor proves anything, and that knowledge of essential nature is not to be obtained either by definition or by demonstration.*

We must now start afresh and consider which of these conclusions are sound and which are not, and what is the nature of definition, and whether essential nature is in any sense demonstrable and definable or in none.

Posterior Analytics: Since definition is said to be the statement of a thing's nature, obviously one kind of definition will be a statement of the meaning of the name, or of an equivalent nominal formula. A definition in this sense tells you, e.g. the meaning of the phrase 'triangular character'. When we are aware that triangle exists, we inquire the reason why it exists. But it is difficult thus to learn the definition of things the existence of which we do not genuinely know—the cause of this difficulty being, as we said before, that we only know accidentally whether or not the thing exists. Moreover, a statement may be a unity in either of two ways, by conjunction, like the Iliad, or because it exhibits a single predicate as inhering not accidentally in a single subject.

Posterior Analytics: That then is one way of defining definition⁶. Another kind of definition is a formula exhibiting the cause of a thing's existence. Thus the former signifies without proving, but the latter will clearly be a quasi-demonstration of essential nature, differing from demonstration in the arrangement of its terms. For there is a difference between stating why it thunders, and stating what is the essential nature of thunder; since the first statement will be 'Because fire is quenched in the clouds', while the statement of what the nature of thunder is will be 'The noise of fire being quenched in the clouds'. Thus the same statement takes a different form: in one form it is continuous demonstration, in the other definition. Again, thunder can be defined as noise in the clouds, which is the

⁴ Aristotle is demonstrating that he does not know the difference between definition and description. This would produce a great source of confusion. Thus what he is saying here refers to description, not definition.

⁵ This is exactly what Gödel did, only he, and his supporters, were too stupid to see their contradictions.

⁶ Without the distinction between definition and description, this logical error is unavoidable.

conclusion of the demonstration embodying essential nature. On the other hand the definition of immediates is an indemonstrable positing of essential nature.

Posterior Analytics: We conclude then that definition is (a) an indemonstrable statement of essential nature, or (b) a syllogism of essential nature differing from demonstration in grammatical form, or (c) the conclusion of a demonstration giving essential nature.

Posterior Analytics: Our discussion has therefore made plain (1) in what sense and of what things the essential nature is demonstrable, and in what sense and of what things it is not; (2) what are the various meanings of the term definition, and in what sense and of what things it proves the essential nature, and in what sense and of what things it does not; (3) what is the relation of definition to demonstration, and how far the same thing is both definable and demonstrable and how far it is not.

Posterior Analytics: The author of a hand-book on a subject that is a generic whole should divide the genus into its first infimae species—number e.g. into triad and dyad—and then endeavour to seize their definitions by the method we have described—the definition, for example, of straight line or circle or right angle. After that, having established what the category is to which the subaltern genus belongs—quantity or quality, for instance—he should examine the properties ‘peculiar’ to the species, working through the proximate common differentiae. He should proceed thus because the attributes of the genera compounded of the infimae species will be clearly given by the definitions of the species; since the basic element of them all is the definition, i.e. the simple infirma species, and the attributes inhere essentially in the simple infimae species, in the genera only in virtue of these.

Definition By Division⁷

Posterior Analytics: In establishing a definition by division one should keep three objects in view: (1) the admission only of elements in the definable form⁸, (2) the arrangement of these in the right order, (3) the omission of no such elements. The first is feasible because one can establish genus and differentia through the topic of the genus, just as one can conclude the inherence of an accident through the topic of the accident. The right order will be achieved if the right term is assumed as primary, and this will be ensured if the term selected is predicable of all the others but not all they of it; since there must be one such term. Having assumed this we at once proceed in the same way with the lower terms; for our second term will be the first of the remainder, our third the first of those which follow the second in a ‘contiguous’ series, since when the higher term is excluded, that term of the remainder which is ‘contiguous’ to it will be primary, and so on.

⁷ This is really not definition at all—one may say it is “distinction” but not “definition”. Did Plato make the same mistake? First of all, this method relies on the ability to add unit sentences to make a statement, and therefore the results are not primary.

⁸ I think if Aristotle had ever mentioned the “definable form” to Plato, Plato must have shook his head and walked away. Since predication is the inverse function of abstraction, and that form and material are the elements of a thing, one cannot predicate of form or material difference—“definable form” speaks a volume against Aristotle’s understanding. One can describe a construction of a thing by which the abstraction of form may be made, but that is not a definition.

Our procedure makes it clear that no elements in the definable form have been omitted: we have taken the differentia that comes first in the order of division, pointing out that animal, e.g. is divisible exhaustively into A and B, and that the subject accepts one of the two as its predicate. Next we have taken the differentia of the whole thus reached, and shown that the whole we finally reach is not further divisible—i.e. that as soon as we have taken the last differentia to form the concrete totality, this totality admits of no division into species. For it is clear that there is no superfluous addition, since all these terms we have selected are elements in the definable form; and nothing lacking, since any omission would have to be a genus or a differentia. Now the primary term is a genus, and this term taken in conjunction with its differentia is a genus: moreover the differentia are all included, because there is now no further differentia; if there were, the final concrete would admit of division into species, which, we said, is not the case.

Posterior Analytics: To resume our account of the right method of investigation: We must start by observing a set of similar—i.e. specifically identical—individuals, and consider what element they have in common. We must then apply the same process to another set of individuals which belong to one species and are generically but not specifically identical with the former set. When we have established what the common element is in all members of this second species, and likewise in members of further species, we should again consider whether the results established possess any identity, and persevere until we reach a single formula, since this will be the definition of the thing. But if we reach not one formula but two or more, evidently the definiendum cannot be one thing but must be more than one. I may illustrate my meaning as follows. If we were inquiring what the essential nature of pride is, we should examine instances of proud men we know of to see what, as such, they have in common; e.g. if Alcibiades was proud, or Achilles and Ajax were proud, we should find on inquiring what they all had in common, that it was intolerance of insult; it was this which drove Alcibiades to war, Achilles wrath, and Ajax to suicide. We should next examine other cases, Lysander, for example, or Socrates, and then if these have in common indifference alike to good and ill fortune, I take these two results and inquire what common element have equanimity amid the vicissitudes of life and impatience of dishonour. If they have none, there will be two genera of pride. Besides, every definition is always universal and commensurate: the physician does not prescribe what is healthy for a single eye, but for all eyes or for a determinate species of eye. It is also easier by this method to define the single species than the universal, and that is why our procedure should be from the several species to the universal genera—this for the further reason too that equivocation is less readily detected in genera than in infimae species. Indeed, perspicuity is essential in definitions, just as inferential movement is the minimum required in demonstrations; and we shall attain perspicuity if we can collect separately the definition of each species through the group of singulars which we have established e.g. the definition of similarity not unqualified but restricted to colours and to figures; the definition of acuteness, but only of sound—and so proceed to the common universal with a careful avoidance of equivocation. *We may add that if dialectical disputation must not employ metaphors, clearly metaphors and metaphorical expressions are precluded in definition: otherwise dialectic would involve metaphors.*

Posterior Analytics: The truth is that cause, effect, and subject are reciprocally predicable in the following way. If the species are taken severally, the effect is wider than

the subject (e.g. the possession of external angles equal to four right angles is an attribute wider than triangle or are), but it is coextensive with the species taken collectively (in this instance with all figures whose external angles are equal to four right angles). And the middle likewise reciprocates, for the middle is a definition of the major; which is incidentally the reason why all the sciences are built up through definition.

Categories:

Categories: Things are said to be named 'equivocally' when, though they have a common name, the definition corresponding with the name differs for each. Thus, a real man and a figure in a picture can both lay claim to the name 'animal'; yet these are equivocally so named, for, though they have a common name, the definition corresponding with the name differs for each. For should any one define in what sense each is an animal, his definition in the one case will be appropriate to that case only.

Categories: On the other hand, things are said to be named 'univocally' which have both the name and the definition answering to the name in common. A man and an ox are both 'animal', and these are univocally so named, inasmuch as not only the name, but also the definition, is the same in both cases: for if a man should state in what sense each is an animal, the statement in the one case would be identical with that in the other.

Categories: It is plain from what has been said that both the name and the definition of the predicate must be predicable of the subject. For instance, 'man' is predicated of the individual man. Now in this case the name of the species 'man' is applied to the individual, for we use the term 'man' in describing the individual; and the definition of 'man' will also be predicated of the individual man, for the individual man is both man and animal. Thus, both the name and the definition of the species are predicable of the individual.

Categories: With regard, on the other hand, to those things which are present in a subject, it is generally the case that neither their name nor their definition is predicable of that in which they are present. Though, however, the definition is never predicable, there is nothing in certain cases to prevent the name being used. For instance, 'white' being present in a body is predicated of that in which it is present, for a body is called white: the definition, however, of the colour 'white' is never predicable of the body.

Categories: Of species themselves, except in the case of such as are genera, no one is more truly substance than another. We should not give a more appropriate account of the individual man by stating the species to which he belonged, than we should of an individual horse by adopting the same method of definition. In the same way, of primary substances, no one is more truly substance than another; an individual man is not more truly substance than an individual ox.

Categories: It is, then, with good reason that of all that remains, when we exclude primary substances, we concede to species and genera alone the name 'secondary substance', for these alone of all the predicates convey a knowledge of primary substance. For it is by stating the species or the genus that we appropriately define any individual man; and we shall make our definition more exact by stating the former than by stating the latter. All other things that we state, such as that he is white, that he runs, and so on, are irrelevant to the definition. Thus it is just that these alone, apart from primary substances, should be called substances.

Categories: It is a common characteristic of all substance that it is never present in a subject. For primary substance is neither present in a subject nor predicated of a subject; while, with regard to secondary substances, it is clear from the following arguments (apart from others) that they are not present in a subject. For 'man' is predicated of the individual man, but is not present in any subject: for manhood is not present in the individual man. In the same way, 'animal' is also predicated of the individual man, but is not present in him. Again, when a thing is present in a subject, though the name may quite well be applied to that in which it is present, the definition cannot be applied. Yet of secondary substances, not only the name, but also the definition, applies to the subject: we should use both the definition of the species and that of the genus with reference to the individual man. Thus substance cannot be present in a subject.

Categories: Yet this is not peculiar to substance, for it is also the case that differentiae cannot be present in subjects. The characteristics 'terrestrial' and 'two-footed' are predicated of the species 'man', but not present in it. For they are not in man. Moreover, the definition of the differentia may be predicated of that of which the differentia itself is predicated. For instance, if the characteristic 'terrestrial' is predicated of the species 'man', the definition also of that characteristic may be used to form the predicate of the species 'man': for 'man' is terrestrial.

Categories: It is the mark of substances and of differentiae that, in all propositions of which they form the predicate, they are predicated univocally. For all such propositions have for their subject either the individual or the species. It is true that, inasmuch as primary substance is not predicable of anything, it can never form the predicate of any proposition. But of secondary substances, the species is predicated of the individual, the genus both of the species and of the individual. Similarly the differentiae are predicated of the species and of the individuals. Moreover, the definition of the species and that of the genus are applicable to the primary substance, and that of the genus to the species. For all that is predicated of the predicate will be predicated also of the subject. Similarly, the definition of the differentiae will be applicable to the species and to the individuals. But it was stated above that the word 'univocal' was applied to those things which had both name and definition in common. It is, therefore, established that in every proposition, of which either substance or a differentia forms the predicate, these are predicated univocally.

Categories: Occasionally, perhaps, it is necessary to coin words, if no word exists by which a correlation can adequately be explained. If we define a rudder as necessarily having reference to a boat, our definition will not be appropriate, for the rudder does not have this reference to a boat qua boat, as there are boats which have no rudders. Thus we cannot use the terms reciprocally, for the word 'boat' cannot be said to find its explanation in the word 'rudder'. As there is no existing word, our definition would perhaps be more accurate if we coined some word like 'ruddered' as the correlative of 'rudder'. If we express ourselves thus accurately, at any rate the terms are reciprocally connected, for the 'ruddered' thing is 'ruddered' in virtue of its rudder. So it is in all other cases. A head will be more accurately defined as the correlative of that which is 'headed', than as that of an animal, for the animal does not have a head qua animal, since many animals have no head.

Categories: It may be questioned whether it is true that no substance is relative, as seems to be the case, or whether exception is to be made in the case of certain secondary substances. With regard to primary substances, it is quite true that there is no such

possibility, for neither wholes nor parts of primary substances are relative. The individual man or ox is not defined with reference to something external. Similarly with the parts: a particular hand or head is not defined as a particular hand or head of a particular person, but as the hand or head of a particular person. It is true also, for the most part at least, in the case of secondary substances; the species 'man' and the species 'ox' are not defined with reference to anything outside themselves. Wood, again, is only relative in so far as it is some one's property, not in so far as it is wood⁹. It is plain, then, that in the cases mentioned substance is not relative. But with regard to some secondary substances there is a difference of opinion; thus, such terms as 'head' and 'hand' are defined with reference to that of which the things indicated are a part, and so it comes about that these appear to have a relative character. Indeed, if our definition of that which is relative was complete, it is very difficult, if not impossible, to prove that no substance is relative. If, however, our definition was not complete, if those things only are properly called relative in the case of which relation to an external object is a necessary condition of existence, perhaps some explanation of the dilemma may be found.

Categories: The former definition does indeed apply to all relatives, but the fact that a thing is explained with reference to something else does not make it essentially relative.

Categories: The qualities expressed by the terms 'triangular' and 'quadrangular' do not appear to admit of variation of degree, nor indeed do any that have to do with figure. For those things to which the definition of the triangle or circle is applicable are all equally triangular or circular. Those, on the other hand, to which the same definition is not applicable, cannot be said to differ from one another in degree; the square is no more a circle than the rectangle, for to neither is the definition of the circle appropriate. In short, if the definition of the term proposed is not applicable to both objects, they cannot be compared. Thus it is not all qualities which admit of variation of degree.

On The Generation Of Animals:

On The Generation Of Animals: There are four causes¹⁰ underlying everything: first, the final cause, that for the sake of which a thing exists; secondly, the formal cause, the definition of its essence (and these two we may regard pretty much as one and the same); thirdly, the material; and fourthly, the moving principle or efficient cause.

On The Generation Of Animals: We have then already discussed the other three causes, for the definition and the final cause are the same, ~

On The Generation Of Animals: Again, as the first efficient or moving cause, to which belong the definition and the form,

⁹ He is not aware that he is using the term "wood" one as a name of a thing and the other the name of material.

¹⁰ In the *Phaedo*, Socrates asserts what we learn in set theory—the unrefutable reason why a thing is a thing, because it is a member of a class that is constructed by a definition. Definition determines class membership. Or, in his words, participates.

Metaphysics

Metaphysics: After the systems we have named came the philosophy of Plato, which in most respects followed these thinkers, but had peculiarities that distinguished it from the philosophy of the Italians. For, having in his youth first become familiar with Cratylus and with the Heraclitean doctrines (that all sensible things are ever in a state of flux and there is no knowledge about them), these views he held even in later years. Socrates, however, was busying himself about ethical matters and neglecting the world of nature as a whole but seeking the universal in these ethical matters, and fixed thought for the first time on definitions; Plato accepted his teaching, but held that the problem applied not to sensible things but to entities of another kind—for this reason, that the common definition could not be a definition of any sensible thing, as they were always changing. Things of this other sort, then, he called Ideas, and sensible things, he said, were all named after these, and in virtue of a relation to these; for the many existed by participation in the Ideas that have the same name as they. Only the name ‘participation’ was new; for the Pythagoreans say that things exist by ‘imitation’ of numbers, and Plato says they exist by participation, changing the name. But what the participation or the imitation of the Forms could be they left an open question¹¹.

Metaphysics: But he agreed with the Pythagoreans in saying that the One is substance and not a predicate of something else; and in saying that the Numbers are the causes of the reality of other things he agreed with them; but positing a dyad and constructing the infinite out of great and small, instead of treating the infinite as one, is peculiar to him; and so is his view that the Numbers exist apart from sensible things, while they say that the things themselves are Numbers, and do not place the objects of mathematics between Forms and sensible things. His divergence from the Pythagoreans in making the One and the Numbers separate from things, and his introduction of the Forms, were due to his inquiries in the region of definitions (for the earlier thinkers had no tincture of dialectic), and his making the other entity besides the One a dyad was due to the belief that the numbers, except those which were prime, could be neatly produced out of the dyad as out of some plastic material. Yet what happens is the contrary; the theory is not a reasonable one. For they make many things out of the matter, and the form generates only once, but what we observe is that one table is made from one matter, while the man who applies the form, though he is one, makes many tables. And the relation of the male to the female is similar; for the latter is impregnated by one copulation, but the male impregnates many females; yet these are analogues of those first principles.

¹¹ This and the next paragraph are very incriminating pieces of evidence that Aristotle did not understand Plato at all. What Plato saw very clearly, is that one has, from the abstractions that the body can abstract, material and form. Material is difference, form is not a difference—i.e. same. We group not by difference but by the same—lack of difference (form). Since you cannot divide a non-difference, the same form covers all individuals in a class. One can read by Aristotle’s explanation he was unable to abstract and use the idea—this is why his dissertations are over embellished and contradictory—his mind was incapable of understanding—he had a very good memory, but very poor concepts. Most normal people it seems have been unable to make this abstraction—this is why one has claims that a line is composed of an infinite number of points—a ball bearing conception of a line. But then again, one can find passages which make it seem that he did understand Plato, however, the bulk of the work denies such a view.

Metaphysics: And how could we learn the elements of all things? Evidently we cannot start by knowing anything before. For as he who is learning geometry, though he may know other things before, knows none of the things with which the science deals and about which he is to learn, so is it in all other cases. Therefore if there is a science of all things, such as some assert to exist, he who is learning this will know nothing before. Yet all learning is by means of premises which are (either all or some of them) known before,—whether the learning be by demonstration or by definitions; for the elements of the definition must be known before and be familiar; and learning by induction proceeds similarly. But again, if the science were actually innate, it were strange that we are unaware of our possession of the greatest of sciences.

Metaphysics: But if there are several sciences of the causes, and a different science for each different principle, which of these sciences should be said to be that which we seek, or which of the people who possess them has the most scientific knowledge of the object in question? The same thing may have all the kinds of causes, e.g. the moving cause of a house is the art or the builder, the final cause is the function it fulfils, the matter is earth and stones, and **the form is the definition.** To judge from our previous discussion of the question which of the sciences should be called Wisdom, there is reason for applying the name to each of them. For inasmuch as it is most architectonic and authoritative and the other sciences, like slavewomen, may not even contradict it, the science of the end and of the good is of the nature of Wisdom (for the other things are for the sake of the end). But inasmuch as it was described as dealing with the first causes and that which is in the highest sense object of knowledge, the science of substance must be of the nature of Wisdom. For since men may know the same thing in many ways, we say that he who recognizes what a thing is by its being so and so knows more fully than he who recognizes it by its not being so and so, and in the former class itself one knows more fully than another, and he knows most fully who knows what a thing is, not he who knows its quantity or quality or what it can by nature do or have done to it. And further in all cases also we think that the knowledge of each even of the things of which demonstration is possible is present only when we know what the thing is, e.g. what squaring a rectangle is, viz. that it is the finding of a mean; and similarly in all other cases. And we know about becomings and actions and about every change when we know the source of the movement; and this is other than and opposed to the end. Therefore it would seem to belong to different sciences to investigate these causes severally.

Metaphysics: To judge from these arguments, then, the principles of things would not be the genera; but if we know each thing by its definition, and the genera are the principles or starting-points of definitions, the genera must also be the principles of definable things. And if to get the knowledge of the species according to which things are named is to get the knowledge of things, the genera are at least starting-points of the species. And some also of those who say unity or being, or the great and the small, are elements of things, seem to treat them as genera.

Metaphysics: But, again, it is not possible to describe the principles in both ways. For the formula of the essence is one; but definition by genera will be different from that which states the constituent parts of a thing.

Metaphysics: First then this at least is obviously true, that the word 'be' or 'not be' has a definite meaning, so that not everything will be 'so and not so'. Again, if 'man' has one

meaning, let this be ‘two-footed animal’; by having one meaning I understand this:—if ‘man’ means ‘X’, then if A is a man ‘X’ will be what ‘being a man’ means for him. (It makes no difference even if one were to say a word has several meanings, if only they are limited in number; for to each definition there might be assigned a different word. For instance, we might say that ‘man’ has not one meaning but several, one of which would have one definition, viz. ‘two-footed animal’, while there might be also several other definitions if only they were limited in number; for a peculiar name might be assigned to each of the definitions. *If, however, they were not limited but one were to say that the word has an infinite number of meanings, obviously reasoning would be impossible*¹²; **for not to have one meaning is to have no meaning**, and if words have no meaning our reasoning with one another, and indeed with ourselves, has been annihilated; for it is impossible to think of anything if we do not think of one thing; but if this is possible, one name might be assigned to this thing.)

Metaphysics: Some people have acquired this opinion as other paradoxical opinions have been acquired; when men cannot refute eristical arguments, they give in to the argument and agree that the conclusion is true. This, then, is why some express this view; others do so because they demand a reason for everything. And the starting-point in dealing with all such people is definition. Now the definition rests on the necessity of their meaning something; for the form of words of which the word is a sign will be its definition.—While the doctrine of Heraclitus, that all things are and are not, seems to make everything true, that of Anaxagoras, that there is an intermediate between the terms of a contradiction, seems to make everything false; for when things are mixed, the mixture is neither good nor not-good, so that one cannot say anything that is true.

Metaphysics: (2) People also transfer the word ‘element’ from this meaning and apply it to that which, being one and small, is useful for many purposes; for which reason what is small and simple and indivisible is called an element. Hence come the facts that the most universal things are elements (because each of them being one and simple is present in a plurality of things, either in all or in as many as possible), and that unity and the point are thought by some to be first principles. Now, since the so-called genera are universal and indivisible (for there is no definition of them), some say the genera are elements, and more so than the differentia, because the genus is more universal; for where the differentia is present, the genus accompanies it, but where the genus is present, the differentia is not always so. It is common to all the meanings that the element of each thing is the first component immanent in each.

Metaphysics: *Clearly, then, only substance is definable*¹³. For if the other categories also are definable, it must be by addition of a determinant, e.g. the qualitative is defined thus,

¹² And it follows also, that the more so called meanings a particular word has, the more difficult it becomes to use the word for reasoning. The more conventional a word becomes the more it can perform its function as a word. Contrast this to those fools who call the change in usage and designation of words “the growth of language”—does it demonstrate one wit of thought?

¹³ Metaphysics: We have now outlined the nature of substance, showing that it is that which is not predicated of a stratum, but of which all else is predicated.

I simply say “a thing.” But although he will state several times that substance is simply some thing, by how he defines it, he will from time to time contradict himself—for he will define substance as a thing one time, and then use the phrase “substance of a thing.”

and so is the odd, for it cannot be defined apart from number; nor can female be defined apart from animal. (When I say 'by addition' I mean the expressions in which it turns out that we are saying the same thing twice, as in these instances.) And if this is true, coupled terms also, like 'odd number', will not be definable (but this escapes our notice because our formulae are not accurate.). But if these also are definable, either it is in some other way or, as we definition and essence must be said to have more than one sense. Therefore in one sense nothing will have a definition and nothing will have an essence, except substances, but in another sense other things will have them. Clearly, then, definition is the formula of the essence, and essence belongs to substances either alone or chiefly and primarily and in the unqualified sense.

Metaphysics: Since a definition is a formula, and every formula has parts, and as the formula is to the thing, so is the part of the formula to the part of the thing, the question is already being asked whether the formula of the parts must be present in the formula of the whole or not. For in some cases the formulae of the parts are seen to be present, and in some not. The formula of the circle does not include that of the segments, but that of the syllable includes that of the letters; yet the circle is divided into segments as the syllable is into letters.—And further if the parts are prior to the whole, and the acute angle is a part of the right angle and the finger a part of the animal, the acute angle will be prior to the right angle and finger to the man. But the latter are thought to be prior; for in formula the parts are explained by reference to them, and in respect also of the power of existing apart from each other the wholes are prior to the parts.

Metaphysics: The truth has indeed now been stated, but still let us state it yet more clearly, taking up the question again. The parts of the formula, into which the formula is divided, are prior to it, either all or some of them. The formula of the right angle, however, does not include the formula of the acute, but the formula of the acute includes that of the right angle; for he who defines the acute uses the right angle; for the acute is 'less than a right angle'. The circle and the semicircle also are in a like relation; for the semicircle is defined by the circle; and so is the finger by the whole body, for a finger is 'such and such a part of a man'. Therefore the parts which are of the nature of matter, and into which as its matter a thing is divided, are posterior; but those which are of the nature of parts of the formula, and of the substance according to its formula, are prior, either all or some of them. And since the soul of animals (for this is the substance of a living being) is their substance according to the formula, i.e. the form and the essence of a body of a certain kind (at least we shall define each part, if we define it well, not without reference to its function, and this cannot belong to it without perception), so that the parts of soul are prior, either all or some of them, to the concrete 'animal', and so too with each individual animal; and the body and parts are posterior to this, the essential substance, and it is not the substance but the concrete thing that is divided into these parts as its matter:—this being so, to the concrete thing these are in a sense prior, but in a sense they are not. For they cannot even exist if severed from the whole; for it is not a finger in any and every state that is the finger of a living thing, but a dead finger is a finger only in name. Some parts are neither prior nor posterior to the whole, i.e. those which are dominant and in which the formula, i.e. the essential substance, is immediately present, e.g. perhaps the heart or the brain; for it does not matter in the least which of the two has this quality. But man and horse and terms which are thus applied to individuals, but universally, are not substance but something

composed of this particular formula and this particular matter treated as universal; and as regards the individual, Socrates already includes in him ultimate individual matter; and similarly in all other cases. **‘A part’ may be a part either of the form (i.e. of the essence), or of the compound of the form and the matter, or of the matter itself.**¹⁴ But only the parts of the form are parts of the formula, and the formula is of the universal; for ‘being a circle’ is the same as the circle, and ‘being a soul’ the same as the soul¹⁵. But when we come to the concrete thing, e.g. this circle, i.e. one of the individual circles, whether perceptible or intelligible (I mean by intelligible circles the mathematical, and by perceptible circles those of bronze and of wood),—of these there is no definition, but they are known by the aid of intuitive thinking or of perception; and when they pass out of this complete realization it is not clear whether they exist or not; but they are always stated and recognized by means of the universal formula. But matter is unknowable in itself. And some matter is perceptible and some intelligible, perceptible matter being for instance bronze and wood and all matter that is changeable, and intelligible matter being that which is present in perceptible things not *quâ* perceptible, i.e. the objects of mathematics.

Metaphysics: Another question is naturally raised, viz. what sort of parts belong to the form and what sort not to the form¹⁶, but to the concrete thing. Yet if this is not plain it is not possible to define any thing; for definition is of the universal and of the form¹⁷. If then it is not evident what sort of parts are of the nature of matter and what sort are not, neither will the formula of the thing be evident. In the case of things which are found to occur in specifically different materials, as a circle may exist in bronze or stone or wood¹⁸, it seems plain that these, the bronze or the stone, are no part of the essence of the circle, since it is found apart from them. Of things which are not seen to exist apart, there is no reason why the same may not be true, just as if all circles that had ever been seen were of bronze; for none the less the bronze would be no part of the form; but it is hard to eliminate it in thought. E.g. the form of man is always found in flesh and bones and parts of this kind; are these then also parts of the form and the formula? No, they are matter; but because man is not found also in other matters we are unable to perform the abstraction.

Metaphysics: We have pointed out, then, that the question of definitions contains some difficulty, and why this is so. And so to reduce all things thus to Forms and to eliminate the

¹⁴ I hope this was translated wrong, let me try to fix it: ‘A part’ may be either the form (i.e. the essence), or of the compound of the form and the matter, or the matter itself.

In other words, there are two ways of thinking of part. A things form, or its matter, or what is normally thought of, dividing the thing up into smaller things. However, one cannot divide the form (divide the divisor), or divide the matter (half of wood is still wood), but one can divide a thing into smaller things. Now, we know that a body acquisition system abstracts form or material, but, in the words of philosophy “We can never know the thing in itself.” Therefore, one has etc.

¹⁵ Again, Aristotle demonstrates that he don’t quite understand. To say the least, the ideas are just beyond his comprehension.

¹⁶ This Aristotle would ask, not understanding that one cannot divide the divisor, part the part, or in Euclid “The point (part) is that which has no part. It is not the boundary that is bounded, it is not the cut that is cut, it is not the form that is formed. But Aristotle cannot quite grasp it.

¹⁷ He did not comprehend Plato, when Plato said, that the first elements, form and matter can only be named. Things are defined in terms of form and matter, form and matter must be abstracted.

¹⁸ Another mistake: is the form in the material or is the material in the form?

matter is useless labour; for some things surely are a particular form in a particular matter, or particular things in a particular state. And the comparison which Socrates the younger used to make in the case of 'animal' is not sound; for it leads away from the truth, and makes one suppose that man can possibly exist without his parts, as the circle can without the bronze. But the case is not similar; for an animal is something perceptible, and it is not possible to define it without reference to movement¹⁹—nor, therefore, without reference to the parts' being in a certain state. For it is not a hand in any and every state that is a part of man, but only when it can fulfil its work, and therefore only when it is alive; if it is not alive it is not a part.

Metaphysics: Whether there is, apart from the matter of such substances, another kind of matter, and one should look for some substance other than these, e.g. numbers²⁰ or something of the sort, must be considered later. For it is for the sake of this that we are trying to determine the nature of perceptible substances as well, since in a sense the inquiry about perceptible substances is the work of physics, i.e. of second philosophy; for the physicist must come to know not only about the matter, but also about the substance expressed in the formula, and even more than about the other. And in the case of definitions, how the elements in the formula are parts of the definition, and why the definition is one formula (for clearly the thing is one, but in virtue of what is the thing one, although it has parts?),—this must be considered later.

Metaphysics: Now let us treat first of definition, in so far as we have not treated of it in the Analytics; for the problem stated in them is useful for our inquiries concerning substance. I mean this problem:—wherein can consist the unity of that, the formula of which we call a definition, as for instance, in the case of man, 'two-footed animal'; for let this be the formula of man. Why, then, is this one, and not many, viz. 'animal' and 'two-footed'? For in the case of 'man' and 'pale' there is a plurality when one term does not belong to the other, but a unity when it does belong and the subject, man, has a certain attribute²¹; for then a unity is produced and we have 'the pale man'. In the present case, on the other hand, one does not share in the other; the genus is not thought to share in its differentiae (for then the same thing would share in contraries; for the differentiae by which the genus is divided are contrary). And even if the genus does share in them, the same argument applies, since the differentiae present in man are many, e.g. endowed with feet, two-footed, featherless. Why are these one and not many? Not because they are present in one thing; for on this principle a unity can be made out of all the attributes of a thing. But surely all the attributes in the definition must be one; for the definition is a single formula and a formula of substance, so that it must be a formula of some one thing; for substance means a 'one' and a 'this', as we maintain.

Metaphysics: We must first inquire about definitions reached by the method of divisions. There is nothing in the definition except the first-named and the differentiae. The other

¹⁹ Here again, Plato addressed this also, is the difference between things part of one or the other thing?

²⁰ Numbers are no more than names generated by using an ordered naming convention, but even at this time in history, what a number *is* is generally a mystery.

²¹ Aristotle has taken the wrong path. Once one knows the structure of unit sentences, one must then determine how these units are added together, just like in arithmetic. Only when one fully understands the unit, can one then start to count.

genera are the first genus and along with this the differentia that are taken with it, e.g. the first may be 'animal', the next 'animal which is two-footed', and again 'animal which is two-footed and featherless', and similarly if the definition includes more terms. And in general it makes no difference whether it includes many or few terms,—nor, therefore, whether it includes few or simply two; and of the two the one is differentia and the other genus; e.g. in 'two-footed animal' 'animal' is genus, and the other is differentia.

Metaphysics: If then the genus absolutely does not exist apart from the species-of-a-genus, or if it exists but exists as matter (for the voice is genus and matter, but its differentia make the species, i.e. the letters, out of it), clearly the definition is the formula which comprises the differentia.

Metaphysics: But it is also necessary that the division be by the differentia of the differentia²²; e.g. 'endowed with feet' is a differentia of 'animal'; again the differentia of 'animal endowed with feet' must be of it *quâ* endowed with feet. Therefore we must not say, if we are to speak rightly, that of that which is endowed with feet one part has feathers and one is featherless (if we do this we do it through incapacity); we must divide it only into cloven-footed and not cloven; for these are differentia in the foot; cloven-footedness is a form of footedness. And the process wants always to go on so till it reaches the species that contain no differences. And then there will be as many kinds of foot as there are differentia, and the kinds of animals endowed with feet will be equal in number to the differentia. If then this is so, clearly the last differentia will be the substance of the thing and its definition, since it is not right to state the same things more than once in our definitions; for it is superfluous. And this does happen; for when we say 'animal endowed with feet and two-footed' we have said nothing other than 'animal having feet, having two feet'; and if we divide this by the proper division, we shall be saying the same thing more than once—as many times as there are differentia.

Metaphysics: If then a differentia of a differentia be taken at each step, one differentia—the last—will be the form and the substance; but if we divide according to accidental qualities, e.g. if we were to divide that which is endowed with feet into the white and the black, there will be as many differentia as there are cuts. Therefore it is plain that the definition is the formula which contains the differentia, or, according to the right method, the last of these. This would be evident, if we were to change the order of such definitions, e.g. of that of man, saying 'animal which is two-footed and endowed with feet'; for 'endowed with feet' is superfluous when 'two-footed' has been said. But there is no order in the substance; for how are we to think the one element posterior and the other prior? Regarding the definitions, then, which are reached by the method of divisions, let this suffice as our first attempt at stating their nature.

Metaphysics: The conclusion is evident also from the following consideration. A substance cannot consist of substances present in it in complete reality; for things that are thus in complete reality two are never in complete reality one, though if they are potentially two, they can be one (e.g. the double line consists of two halves—potentially; for the

²² This amounts to the set of a set which blew away Whitehead and Russell. Aristotle steps into it completely unaware of a contradiction. Is a thing abstracted from a thing? Is form abstracted from form? Is material abstracted from form? etc., This was why Plato gave Parmenides exercise for learning the principles of predication.

complete realization of the halves divides them from one another); therefore if the substance is one, it will not consist of substances present in it and present in this way, which Democritus describes rightly; he says one thing cannot be made out of two nor two out of one; for he identifies substances with his indivisible magnitudes. It is clear therefore that the same will hold good of number, if number is a synthesis of units, as is said by some; for two is either not one, or there is no unit present in it in complete reality. But our result involves a difficulty. If no substance can consist of universals because a universal indicates a 'such', not a 'this', and if no substance can be composed of substances existing in complete reality, every substance would be incomposite, so that there would not even be a formula of any substance. But it is thought by all and was stated long ago that it is either only, or primarily, substance that can be defined; yet now it seems that not even substance can. There cannot, then, be a definition of anything; or in a sense there can be, and in a sense there cannot. And what we are saying will be plainer from what follows.

Metaphysics: Since substance is of two kinds, the concrete thing and the formula (I mean that one kind of substance is the formula taken with the matter, while another kind is the formula in its generality), substances in the former sense are capable of destruction (for they are capable also of generation), but there is no destruction of the formula in the sense that it is ever in course of being destroyed (for there is no generation of it either; the being of house is not generated, but only the being of this house), but without generation and destruction formulae are and are not; for it has been shown that no one begets nor makes these. For this reason, also, there is neither definition of nor demonstration about sensible individual substances, because they have matter whose nature is such that they are capable both of being and of not being; for which reason all the individual instances of them are destructible. If then demonstration is of necessary truths and definition is a scientific process, and if, just as knowledge cannot be sometimes knowledge and sometimes ignorance, but the state which varies thus is opinion, so too demonstration and definition cannot vary thus, but it is opinion that deals with that which can be otherwise than as it is, clearly there can neither be definition of nor demonstration about sensible individuals. For perishing things are obscure to those who have the relevant knowledge, when they have passed from our perception; and though the formulae remain in the soul unchanged, there will no longer be either definition or demonstration. And so when one of the definition-mongers defines any individual, he must recognize that his definition may always be overthrown; for it is not possible to define such things.

Metaphysics: As has been said, then, the impossibility of defining individuals escapes notice in the case of eternal things, especially those which are unique, like the sun or the moon. For people err not only by adding attributes whose removal the sun would survive, e.g. 'going round the earth' or 'night-hidden' (for from their view it follows that if it stands still or is visible, it will no longer be the sun; but it is strange if this is so; for 'the sun' means a certain substance); but also by the mention of attributes which can belong to another subject; e.g. if another thing with the stated attributes comes into existence, clearly it will be a sun; the formula therefore is general. But the sun was supposed to be an individual, like Cleon or Socrates. After all, why does not one of the supporters of the Ideas

produce a definition of an Idea²³? It would become clear, if they tried, that what has now been said is true.

Metaphysics: WE must reckon up the results arising from what has been said, and compute the sum of them, and put the finishing touch to our inquiry. We have said that the causes, principles, and elements of substances are the object of our search. And some substances are recognized by every one, but some have been advocated by particular schools. Those generally recognized are the natural substances, i.e. fire, earth, water, air, &c., the simple bodies; second plants and their parts, and animals and the parts of animals; and finally the physical universe and its parts; while some particular schools say that Forms and the objects of mathematics are substances. But there are arguments which lead to the conclusion that there are other substances, the essence and the substratum. Again, in another way the genus seems more substantial than the various species, and the universal than the particulars. And with the universal and the genus the Ideas are connected; it is in virtue of the same argument that they are thought to be substances. And since the essence is substance, and the definition is a formula of the essence, for this reason we have discussed definition and essential predication. Since the definition is a formula, and a formula has parts, we had to consider also with respect to the notion of 'part', what are parts of the substance and what are not, and whether the parts of the substance are also parts of the definition. Further, too, neither the universal nor the genus is a substance; we must inquire later into the Ideas and the objects of mathematics; for some say these are substances as well as the sensible substances.

Metaphysics: Since the substance which exists as underlying and as matter is generally recognized, and this that which exists potentially, it remains for us to say what is the substance, in the sense of actuality, of sensible things. Democritus seems to think there are three kinds of difference between things; the underlying body, the matter, is one and the same, but they differ either in rhythm, i.e. shape, or in turning, i.e. position, or in inter-contact, i.e. order. But evidently there are many differences; for instance, some things are characterized by the mode of composition of their matter, e.g. the things formed by blending, such as honey-water; and others by being bound together, e.g. bundle; and others by being glued together, e.g. a book; and others by being nailed together, e.g. a casket; and others in more than one of these ways; and others by position, e.g. threshold and lintel (for these differ by being placed in a certain way); and others by time, e.g. dinner and breakfast; and others by place, e.g. the winds; and others by the affections proper to sensible things, e.g. hardness and softness, density and rarity, dryness and wetness; and some things by some of these qualities, others by them all, and in general some by excess and some by defect. Clearly, then, the word 'is' has just as many meanings; a thing is a threshold because it lies in such and such a position, and its being means its lying in that position, while being ice means having been solidified in such and such a way. And the being of some things will be defined by all these qualities, because some parts of them are mixed, others are blended, others are bound together, others are solidified, and others use the other differentiae; e.g. the hand or the foot requires such complex definition. We must grasp, then, the kinds of differentiae (for these will be the principles of the being of things), e.g. the things characterized by the more and the less, or by the dense and the rare, and by

²³ His challenge amounts to an idea of an idea. Self-referential.

other such qualities; for all these are forms of excess and defect. And anything that is characterized by shape or by smoothness and roughness is characterized by the straight and the curved. And for other things their being will mean their being mixed, and their not being will mean the opposite.

Metaphysics: It is clear, then, from these facts that, since its substance is the cause of each thing's being, we must seek in these differentiae what is the cause of the being of each of these things. Now none of these differentiae is substance, even when coupled with matter, yet it is what is analogous to substance in each case; and as in substances that which is predicated of the matter is the actuality itself, in all other definitions also it is what most resembles full actuality. E.g. if we had to define a threshold, we should say 'wood or stone in such and such a position', and a house we should define as 'bricks and timbers in such and such a position', (or a purpose may exist as well in some cases), and if we had to define ice we should say 'water frozen or solidified in such and such a way', and harmony is 'such and such a blending of high and low'; and similarly in all other cases.

Metaphysics: Obviously, then, the actuality or the formula is different when the matter is different; for in some cases it is the composition, in others the mixing, and in others some other of the attributes we have named. And so, of the people who go in for defining, those who define a house as stones, bricks, and timbers are speaking of the potential house, for these are the matter; but those who propose 'a receptacle to shelter chattels and living beings', or something of the sort, speak of the actuality. Those who combine both of these speak of the third kind of substance, which is composed of matter and form (for the formula that gives the differentiae seems to be an account of the form or actuality, while that which gives the components is rather an account of the matter); and the same is true of the kind of definitions which Archytas used to accept; they are accounts of the combined form and matter. E.g. what is still weather? Absence of motion in a large expanse of air; air is the matter, and absence of motion is the actuality and substance. What is a calm? Smoothness of sea; the material substratum is the sea, and the actuality or shape is smoothness. It is obvious then, from what has been said, what sensible substance is and how it exists—one kind of it as matter, another as form or actuality, while the third kind is that which is composed of these two.

Metaphysics: Therefore the difficulty which used to be raised by the school of Antisthenes and other such uneducated people has a certain timeliness. They said that the 'what' cannot be defined (for the definition so called is a 'long rigmarole') but of what sort a thing, e.g. silver, is, they thought it possible actually to explain, not saying what it is, but that it is like tin. **Therefore one kind of substance can be defined and formulated, i.e. the composite kind, whether it be perceptible or intelligible; but the primary parts of which this consists cannot be defined, since a definitory formula predicates something of something, and one part of the definition must play the part of matter and the other that of form.**²⁴

Metaphysics: It is also obvious that, if substances are in a sense numbers, they are so in this sense and not, as some say, as numbers of units. For a definition is a sort of

²⁴ I.e. A thing is some difference, some material in some form. Or one can say, if one can apply a boundary then it is a material, such as space. Aristotle did not take this as the foundation. He did not comprehend it. I think a great deal of confusion is that this statement does not say which form of a thing.

number; for (1) it is divisible, and into indivisible parts (for definitory formulae are not infinite), and number also is of this nature. And (2) as, when one of the parts of which a number consists has been taken from or added to the number, it is no longer the same number, but a different one, even if it is the very smallest part that has been taken away or added, so the definition and the essence will no longer remain when anything has been taken away or added. And (3) the number must be something in virtue of which it is one, and this these thinkers cannot state, what makes it one, if it is one (for either it is not one but a sort of heap, or if it is, we ought to say what it is that makes one out of many); and the definition is one, but similarly they cannot say what makes it one. And this is a natural result; for the same reason is applicable, and substance is one in the sense which we have explained, and not, as some say, by being a sort of unit or point; each is a complete reality and a definite nature. **And (4) as number does not admit of the more and the less, neither does substance, in the sense of form, but if any substance does, it is only the substance which involves matter**²⁵. Let this, then, suffice for an account of the generation and destruction of so-called substances in what sense it is possible and in what sense impossible—and of the reduction of things to number.

Metaphysics: To return to the difficulty which has been stated with respect both to definitions and to numbers, what is the cause of their unity? In the case of all things which have several parts and in which the totality is not, as it were, a mere heap, but the whole is something beside the parts, there is a cause; for even in bodies contact is the cause of unity in some cases, and in others viscosity or some other such quality. And a definition is a set of words which is one not by being connected together, like the Iliad, but by dealing with one object.—What then, is it that makes man one; why is he one and not many, e.g. animal biped, especially if there are, as some say, an animal—itself and a biped—itself? Why are not those Forms themselves the man, so that men would exist by participation not in man, nor in one Form, but in two, animal and biped, and in general man would be not one but more than one thing, animal and biped?

Metaphysics: Clearly, then, if people proceed thus in their usual manner of definition and speech, they cannot explain and solve the difficulty. But if, as we say, one element is matter and another is form, and one is potentially and the other actually, the question will no longer be thought a difficulty. For this difficulty is the same as would arise if 'round bronze' were the definition of 'cloak'; for this word would be a sign of the definitory formula, so that the question is, what is the cause of the unity of 'round' and 'bronze'? **The difficulty disappears, because the one is matter, the other form**²⁶. What, then, causes this—that which was potentially to be actually—except, in the case of things which are generated, the agent? For there is no other cause of the potential sphere's becoming actually a sphere, but this was the essence of either. Of matter some is intelligible, some perceptible, and in a formula there is always an element of matter as well

²⁵ He will call both form and matter substance and he will also call them elements. This use of the term elements was used by both Plato and Euclid to mean the same thing, form and matter—yet, whenever one hears a discourse on what the ancients thought that the elements were, this use I don't recall ever being mentioned, yet it is the foundation of grammar, not even taught today.

²⁶ Now he appears to be lucid, but why introduce the terms potentiality and actuality?

as one of actuality²⁷; e.g. the circle is 'a plane figure'. But of the things which have no matter, either intelligible or perceptible, each is by its nature essentially a kind of unity, as it is essentially a kind of being—individual substance, quality, or quantity (and so neither 'existent' nor 'one' is present in their definitions), and the essence of each of them is by its very nature a kind of unity as it is a kind of being—and so none of these has any reason outside itself, for being one, nor for being a kind of being; for each is by its nature a kind of being and a kind of unity, not as being in the genus 'being' or 'one' nor in the sense that being and unity can exist apart from particulars²⁸.

Metaphysics: Since we have treated of the kind of potency which is related to movement, let us discuss actuality—what, and what kind of thing, actuality is. For in the course of our analysis it will also become clear, with regard to the potential, that we not only ascribe potency to that whose nature it is to move something else, or to be moved by something else, either without qualification or in some particular way, but also use the word in another sense, which is the reason of the inquiry in the course of which we have discussed these previous senses also. Actuality, then, is the existence of a thing not in the way which we express by 'potentially'; we say that potentially, for instance, a statue of Hermes²⁹ is in the block of wood and the half-line is in the whole, because it might be separated out, and we call even the man who is not studying a man of science, if he is capable of studying; the thing that stands in contrast to each of these exists actually. Our meaning can be seen in the particular cases by induction, and we must not seek a definition of everything but be content to grasp the analogy, that it is as that which is building is to that which is capable of building, and the waking to the sleeping, and that which is seeing to that which has its eyes shut but has sight, and that which has been shaped out of the matter to the matter, and that which has been wrought up to the unwrought. Let actuality be defined by one member of this antithesis, and the potential by the other. But all things are not said in the same sense to exist actually, but only by analogy—as A is in B or to B, C is in D or to D; for some are as movement to potency, and the others as substance to some sort of matter.

Metaphysics: The one and the many are opposed in several ways, of which one is the opposition of the one and plurality as indivisible and divisible; for that which is either divided or divisible is called a plurality, and that which is indivisible or not divided is called one. Now since opposition is of four kinds, and one of these two terms is privative in meaning, they must be contraries, and neither contradictory nor correlative in meaning. And the one derives its name and its explanation from its contrary, the indivisible from the divisible, because plurality and the divisible is more perceptible than the indivisible, so that in definition plurality is prior to the indivisible³⁰, because of the conditions of perception.

²⁷ I.e. matter and form—but why the synonym switching? To hide the fact that this is exactly Plato's stance? He will then become sidetracked as to how the form is applied to the material, which is rather fruitless as the crafts have countless ways of performing that task.

²⁸ Somehow he could not bring himself to say that form and material are the "parts" of a thing, each of which, in of itself is not a thing. This amounts to, everything is composed of nothing.

²⁹ Instead of saying that the block of wood is the material, and the form of such and such is applied to it, he has to go off on a half baked discussion using his particular chosen words. It is clear that Aristotle was not a straight forward talker. This probably aggravated Plato to no end.

³⁰ Another major blunder. Can one predicate of a first principle, form or matter? Second, since form and matter cannot be separated, how can one be prior?

Metaphysics: To the one belong, as we indicated graphically in our distinction of the contraries, the same and the like and the equal, and to plurality belong the other and the unlike and the unequal. 'The same' has several meanings³¹; (1) we sometimes mean 'the same numerically'; again, (2) we call a thing the same if it is one both in definition and in number, e.g. you are one with yourself both in form and in matter; and again, (3) if the definition of its primary essence is one; e.g. equal straight lines are the same, and so are equal and equal-angled quadrilaterals; there are many such, but in these equality constitutes unity.

Metaphysics: But since every pair of contraries falls to be examined by one and the same science, and in each pair one term is the privative of the other though one might regarding some contraries raise the question, how they can be privately related, viz. those which have an intermediate, e.g. unjust and just—in all such cases one must maintain that the privation is not of the whole definition, but of the infima species, if the just man is 'by virtue of some permanent disposition obedient to the laws', the unjust man will not in every case have the whole definition denied of him, but may be merely 'in some respect deficient in obedience to the laws', and in this respect the privation will attach to him³²; and similarly in all other cases.

Metaphysics: (b) Again, the elements will not be even knowable; for they are not universal, and knowledge is of universals. This is clear from demonstrations and from definitions; for we do not conclude that this triangle has its angles equal to two right angles, unless every triangle has its angles equal to two right angles, nor that this man is an animal, unless every man is an animal.

On The Parts Of Animals

On The Parts Of Animals: Some writers propose to reach the definitions of the ultimate forms of animal life by bipartite division. But this method is often difficult, and often impracticable.

Physics

Physics: Plainly then, if there are conditions and principles which constitute natural objects and from which they primarily are or have come to be—have come to be, I mean, what each is said to be in its essential nature, not what each is in respect of a concomitant attribute—plainly, I say, everything comes to be from both subject and form³³. For 'musical man' is composed (in a way) of 'man' and 'musical': you can analyse it into the definitions of its elements. It is clear then that what comes to be will come to be from these elements.

³¹ Does it have several meanings? Really, or has countless applications? He must have drove all the philosophers crazy.

³² Here again, container and contained error. Does the definition determine class membership, or does the member contain the definition?

³³ Now one might think that he has made a synonym for matter with subject, however, he has just made matter and form the elements of a thing, and a thing an element also! Plato must have thought him hopelessly stupid.

Physics: The matter comes to be and ceases to be in one sense³⁴, while in another it does not. As that which contains the privation, it ceases to be in its own nature, for what ceases to be—the privation—is contained within it. But as potentiality it does not cease to be in its own nature, but is necessarily outside the sphere of becoming and ceasing to be. For if it came to be, something must have existed as a primary substratum from which it should come and which should persist in it; but this is its own special nature, so that it will be before coming to be. (For my definition of matter³⁵ is just this—the primary substratum of each thing, from which it comes to be without qualification, and which persists in the result.) And if it ceases to be it will pass into that at the last, so it will have ceased to be before ceasing to be.

Physics: Another account is that 'nature' is the shape or form which is specified in the definition of the thing³⁶.

Physics: For the word 'nature' is applied to what is according to nature and the natural in the same way as 'art' is applied to what is artistic or a work of art. We should not say in the latter case that there is anything artistic about a thing, if it is a bed only potentially, not yet having the form of a bed; nor should we call it a work of art. The same is true of natural compounds. What is potentially flesh or bone has not yet its own 'nature'³⁷, and does not exist until it receives the form specified in the definition, which we name in defining what flesh or bone is. Thus in the second sense of 'nature' it would be the shape or form (not separable except in statement) of things which have in themselves a source of motion. (The combination of the two, e.g. man, is not 'nature' but 'by nature' or 'natural'.)

Physics: The necessary in nature, then, is plainly what we call by the name of matter, and the changes in it. Both causes must be stated by the physicist, but especially the end; for that is the cause of the matter, not vice versa; and the end is 'that for the sake of which', and the beginning starts from the definition or essence; as in artificial products, since a house is of such-and-such a kind, certain things must necessarily come to be or be there already, or since health is this, these things must necessarily come to be or be there already. Similarly if man is this, then these; if these, then those. Perhaps the necessary is present also in the definition. For if one defines the operation of sawing as being a certain kind of dividing, then this cannot come about unless the saw has teeth of a certain kind; and these cannot be unless it is of iron. For in the definition too there are some parts that are, as it were, its matter.

On The Soul

On The Soul: We must consider also whether soul is divisible or is without parts, and whether it is everywhere homogeneous or not; and if not homogeneous, whether its various forms are different specifically or generically: up to the present time those who have

³⁴ Now we see an very sharp distinction in intellect, Plato rightly said that one cannot predicate existence or non-existence to these elements, and he was right. Apparently, the reason was over Aristotle's head.

³⁵ If a definition must state both form and matter, oh by George, how then can you define matter? I begin to believe that Aristotle did not attend Plato's Academy, that it was a myth.

³⁶ Now he is providing a synonym for form—nature. Wonderful.

³⁷ Now he is going to use "nature" to mean material. More than wonderful.

discussed and investigated soul seem to have confined themselves to the human soul. We must be careful not to ignore the question whether soul can be defined in a single unambiguous formula, as is the case with animal, or whether we must not give a separate formula for each of it, as we do for horse, dog, man, god (in the latter case the 'universal' animal-and so too every other 'common predicate'-being treated either as nothing at all or as a later product). Further, if what exists is not a plurality of souls, but a plurality of parts of one soul, which ought we to investigate first, the whole soul or its parts? (It is also a difficult problem to decide which of these parts are in nature distinct from one another.) Again, which ought we to investigate first, these parts or their functions, mind or thinking, the faculty or the act of sensation, and so on? If the investigation of the functions precedes that of the parts, the further question suggests itself: ought we not before either to consider the correlative objects, e.g. of sense or thought? It seems not only useful for the discovery of the causes of the derived properties of substances to be acquainted with the essential nature of those substances (as in mathematics it is useful for the understanding of the property of the equality of the interior angles of a triangle to two right angles to know the essential nature of the straight and the curved or of the line and the plane) but also conversely, for the knowledge of the essential nature of a substance is largely promoted by an acquaintance with its properties: for, when we are able to give an account conformable to experience of all or most of the properties of a substance, we shall be in the most favourable position to say something worth saying about the essential nature of that subject; in all demonstration a definition of the essence is required as a starting-point, so that definitions which do not enable us to discover the derived properties, or which fail to facilitate even a conjecture about them, must obviously, one and all, be dialectical and futile.

On The Soul: Since what is clear or logically more evident emerges from what in itself is confused but more observable by us, we must reconsider our results from this point of view. For it is not enough for a definitive formula to express as most now do the mere fact; it must include and exhibit the ground also. At present definitions are given in a form analogous to the conclusion of a syllogism; e.g. What is squaring? The construction of an equilateral rectangle equal to a given oblong rectangle. Such a definition is in form equivalent to a conclusion. One that tells us that squaring is the discovery of a line which is a mean proportional between the two unequal sides of the given rectangle discloses the ground of what is defined.

On The Soul: Assertion is the saying of something concerning something, e.g. affirmation, and is in every case either true or false: this is not always the case with mind: the thinking of the definition in the sense of the constitutive essence is never in error nor is it the assertion of something concerning something, but, just as while the seeing of the special object of sight can never be in error, the belief that the white object seen is a man may be mistaken, so too in the case of objects which are without matter.

Topics

Topics: We must now say what are 'definition', 'property', 'genus', and 'accident'. A 'definition' is a phrase signifying a thing's essence. It is rendered in the form either of a phrase in lieu of a term, or of a phrase in lieu of another phrase; for it is sometimes

possible to define the meaning of a phrase as well. People whose rendering consists of a term only, try it as they may, clearly do not render the definition of the thing in question, because a definition is always a phrase of a certain kind. One may, however, use the word 'definitory' also of such a remark as 'The "becoming" is "beautiful"', and likewise also of the question, 'Are sensation and knowledge the same or different?', for argument about definitions is mostly concerned with questions of sameness and difference. In a word we may call 'definitory' everything that falls under the same branch of inquiry as definitions; and that all the above—mentioned examples are of this character is clear on the face of them. For if we are able to argue that two things are the same or are different, we shall be well supplied by the same turn of argument with lines of attack upon their definitions as well: for when we have shown that they are not the same we shall have demolished the definition. Observe, please, that the converse of this last statement does not hold: for to show that they are the same is not enough to establish a definition. To show, however, that they are not the same is enough of itself to overthrow it.

Topics: An 'accident' is (i) something which, though it is none of the foregoing—i.e. neither a definition nor a property nor a genus yet belongs to the thing: (something which may possibly either belong or not belong to any one and the self-same thing, as (e.g.) the 'sitting posture' may belong or not belong to some self-same thing. Likewise also 'whiteness', for there is nothing to prevent the same thing being at one time white, and at another not white. Of the definitions of accident the second is the better: for if he adopts the first, any one is bound, if he is to understand it, to know already what 'definition' and 'genus' and 'property' are, whereas the second is sufficient of itself to tell us the essential meaning of the term in question. To Accident are to be attached also all comparisons of things together, when expressed in language that is drawn in any kind of way from what happens (accidit) to be true of them; such as, for example, the question, 'Is the honourable or the expedient preferable?' and 'Is the life of virtue or the life of self-indulgence the pleasanter?', and any other problem which may happen to be phrased in terms like these. For in all such cases the question is 'to which of the two does the predicate in question happen (accidit) to belong more closely?' It is clear on the face of it that there is nothing to prevent an accident from becoming a temporary or relative property. Thus the sitting posture is an accident, but will be a temporary property, whenever a man is the only person sitting, while if he be not the only one sitting, it is still a property relatively to those who are not sitting. So then, there is nothing to prevent an accident from becoming both a relative and a temporary property; but a property absolutely it will never be.

Topics: We must not fail to observe that all remarks made in criticism of a 'property' and 'genus' and 'accident' will be applicable to 'definitions' as well. For when we have shown that the attribute in question fails to belong only to the term defined, as we do also in the case of a property, or that the genus rendered in the definition is not the true genus, or that any of the things mentioned in the phrase used does not belong, as would be remarked also in the case of an accident, we shall have demolished the definition; so that, to use the phrase previously employed, 'all the points we have enumerated might in a certain sense be called 'definitory'. But we must not on this account expect to find a single line of inquiry which will apply universally to them all: for this is not an easy thing to find, and, even were one found, it would be very obscure indeed, and of little service for the treatise before us. Rather, a special plan of inquiry must be laid down for each of the classes we have

distinguished, and then, starting from the rules that are appropriate in each case, it will probably be easier to make our way right through the task before us. So then, as was said before,' we must outline a division of our subject, and other questions we must relegate each to the particular branch to which it most naturally belongs, speaking of them as 'definitory' and 'generic' questions. The questions I mean have practically been already assigned to their several branches.

Topics: First of all we must define the number of senses borne by the term 'Sameness'. Sameness would be generally regarded as falling, roughly speaking, into three divisions. We generally apply the term numerically or specifically or generically—numerically in cases where there is more than one name but only one thing, e.g. 'doublet' and 'cloak'; specifically, where there is more than one thing, but they present no differences in respect of their species, as one man and another, or one horse and another: for things like this that fall under the same species are said to be 'specifically the same'. Similarly, too, those things are called generically the same which fall under the same genus, such as a horse and a man. It might appear that the sense in which water from the same spring is called 'the same water' is somehow different and unlike the senses mentioned above: but really such a case as this ought to be ranked in the same class with the things that in one way or another are called 'the same' in view of unity of species. For all such things seem to be of one family and to resemble one another. For the reason why all water is said to be specifically the same as all other water is because of a certain likeness it bears to it, and the only difference in the case of water drawn from the same spring is this, that the likeness is more emphatic: that is why we do not distinguish it from the things that in one way or another are called 'the same' in view of unity of species. It is generally supposed that the term 'the same' is most used in a sense agreed on by every one when applied to what is numerically one. But even so, it is apt to be rendered in more than one sense; its most literal and primary use is found whenever the sameness is rendered in reference to an alternative name or definition, as when a cloak is said to be the same as a doublet, or an animal that walks on two feet is said to be the same as a man: a second sense is when it is rendered in reference to a property, as when what can acquire knowledge is called the same as a man, and what naturally travels upward the same as fire: while a third use is found when it is rendered in reference to some term drawn from Accident, as when the creature who is sitting, or who is musical, is called the same as Socrates. For all these uses mean to signify numerical unity. That what I have just said is true may be best seen where one form of appellation is substituted for another. For often when we give the order to call one of the people who are sitting down, indicating him by name, we change our description, whenever the person to whom we give the order happens not to understand us; he will, we think, understand better from some accidental feature; so we bid him call to us 'the man who is sitting' or 'who is conversing over there'—clearly supposing ourselves to be indicating the same object by its name and by its accident.

Topics: Of 'sameness' then, as has been said,' three senses are to be distinguished. Now one way to confirm that the elements mentioned above are those out of which and through which and to which arguments proceed, is by induction: for if any one were to survey propositions and problems one by one, it would be seen that each was formed either from the definition of something or from its property or from its genus or from its accident. Another way to confirm it is through reasoning. For every predicate of a subject must of

necessity be either convertible with its subject or not: and if it is convertible, it would be its definition or property, for if it signifies the essence, it is the definition; if not, it is a property: for this was what a property is, viz. what is predicated convertibly, but does not signify the essence. If, on the other hand, it is not predicated convertibly of the thing, it either is or is not one of the terms contained in the definition of the subject: and if it be one of those terms, then it will be the genus or the differentia, inasmuch as the definition consists of genus and differentia; whereas, if it be not one of those terms, clearly it would be an accident, for accident was said to be what belongs as an attribute to a subject without being either its definition or its genus or a property.

Topics: Next, then, we must distinguish between the classes of predicates in which the four orders in question are found. These are ten in number: Essence, Quantity, Quality, Relation, Place, Time, Position, State, Activity, Passivity. For the accident and genus and property and definition of anything will always be in one of these categories: for all the propositions found through these signify either something's essence or its quality or quantity or some one of the other types of predicate. It is clear, too, on the face of it that the man who signifies something's essence signifies sometimes a substance, sometimes a quality, sometimes some one of the other types of predicate. For when man is set before him and he says that what is set there is 'a man' or 'an animal', he states its essence and signifies a substance; but when a white colour is set before him and he says that what is set there is 'white' or is 'a colour', he states its essence and signifies a quality. Likewise, also, if a magnitude of a cubit be set before him and he says that what is set there is a magnitude of a cubit, he will be describing its essence and signifying a quantity. Likewise, also, in the other cases: for each of these kinds of predicate, if either it be asserted of itself, or its genus be asserted of it, signifies an essence: if, on the other hand, one kind of predicate is asserted of another kind, it does not signify an essence, but a quantity or a quality or one of the other kinds of predicate. Such, then, and so many, are the subjects on which arguments take place, and the materials with which they start. How we are to acquire them, and by what means we are to become well supplied with them, falls next to be told.

Topics: First, then, a definition must be given of a 'dialectical proposition' and a 'dialectical problem'. For it is not every proposition nor yet every problem that is to be set down as dialectical: for no one in his senses would make a proposition of what no one holds, nor yet make a problem of what is obvious to everybody or to most people: for the latter admits of no doubt, while to the former no one would assent. Now a dialectical proposition consists in asking something that is held by all men or by most men or by the philosophers, i.e. either by all, or by most, or by the most notable of these, provided it be not contrary to the general opinion; for a man would probably assent to the view of the philosophers, if it be not contrary to the opinions of most men. Dialectical propositions also include views which are like those generally accepted; also propositions which contradict the contraries of opinions that are taken to be generally accepted, and also all opinions that are in accordance with the recognized arts. Thus, supposing it to be a general opinion that the knowledge of contraries is the same, it might probably pass for a general opinion also that the perception of contraries is the same: also, supposing it to be a general opinion that there is but one single science of grammar, it might pass for a general opinion that there is but one science of flute-playing as well, whereas, if it be a general opinion that there is

more than one science of grammar, it might pass for a general opinion that there is more than one science of flute-playing as well: for all these seem to be alike and akin. Likewise, also, propositions contradicting the contraries of general opinions will pass as general opinions: for if it be a general opinion that one ought to do good to one's friends, it will also be a general opinion that one ought not to do them harm. Here, that one ought to do harm to one's friends is contrary to the general view, and that one ought not to do them harm is the contradictory of that contrary. Likewise also, if one ought to do good to one's friends, one ought not to do good to one's enemies: this too is the contradictory of the view contrary to the general view; the contrary being that one ought to do good to one's enemies. Likewise, also, in other cases. Also, on comparison, it will look like a general opinion that the contrary predicate belongs to the contrary subject: e.g. if one ought to do good to one's friends, one ought also to do evil to one's enemies. it might appear also as if doing good to one's friends were a contrary to doing evil to one's enemies: but whether this is or is not so in reality as well will be stated in the course of the discussion upon contraries. Clearly also, all opinions that are in accordance with the arts are dialectical propositions; for people are likely to assent to the views held by those who have made a study of these things, e.g. on a question of medicine they will agree with the doctor, and on a question of geometry with the geometrician; and likewise also in other cases.

Topics: Having drawn these definitions, we must distinguish how many species there are of dialectical arguments. There is on the one hand Induction, on the other Reasoning. Now what reasoning is has been said before: induction is a passage from individuals to universals, e.g. the argument that supposing the skilled pilot is the most effective, and likewise the skilled charioteer, then in general the skilled man is the best at his particular task. Induction is the more convincing and clear: it is more readily learnt by the use of the senses, and is applicable generally to the mass of men, though reasoning is more forcible and effective against contradictory people.

Topics: Of propositions and problems there are—to comprehend the matter in outline—three divisions: for some are ethical propositions, some are on natural philosophy, while some are logical. Propositions such as the following are ethical, e.g. 'Ought one rather to obey one's parents or the laws, if they disagree?'; such as this are logical, e.g. 'Is the knowledge of opposites the same or not?'; while such as this are on natural philosophy, e.g. 'Is the universe eternal or not?' Likewise also with problems. The nature of each of the aforesaid kinds of proposition is not easily rendered in a definition, but we have to try to recognize each of them by means of the familiarity attained through induction, examining them in the light of the illustrations given above.

Topics: On the formation, then, of propositions, the above remarks are enough. As regards the number of senses a term bears, we must not only treat of those terms which bear different senses, but we must also try to render their definitions; e.g. we must not merely say that justice and courage are called 'good' in one sense, and that what conduces to vigour and what conduces to health are called so in another, but also that the former are so called because of a certain intrinsic quality they themselves have, the latter because they are productive of a certain result and not because of any intrinsic quality in themselves. Similarly also in other cases.

Topics: Look also at the genera of the objects denoted by the same term, and see if they are different without being subaltern, as (e.g.) 'donkey', which denotes both the animal and

the engine. For the definition of them that corresponds to the name is different: for the one will be declared to be an animal of a certain kind, and the other to be an engine of a certain kind. If, however, the genera be subaltern, there is no necessity for the definitions to be different. Thus (e.g.) 'animal' is the genus of 'raven', and so is 'bird'. Whenever therefore we say that the raven is a bird, we also say that it is a certain kind of animal, so that both the genera are predicated of it. Likewise also whenever we call the raven a 'flying biped animal', we declare it to be a bird: in this way, then, as well, both the genera are predicated of raven, and also their definition. But in the case of genera that are not subaltern this does not happen, for whenever we call a thing an 'engine', we do not call it an animal, nor vice versa.

Topics:1 It is useful also to look at the definition that arises from the use of the term in combination, e.g. of a 'clear (lit. white) body' of a 'clear note'. For then if what is peculiar in each case be abstracted, the same expression ought to remain over. This does not happen in the case of ambiguous terms, e.g. in the cases just mentioned. For the former will be body possessing such and such a colour', while the latter will be 'a note easy to hear'. Abstract, then, 'a body 'and' a note', and the remainder in each case is not the same. It should, however, have been had the meaning of 'clear' in each case been synonymous.

Topics:2 Often in the actual definitions as well ambiguity creeps in unawares, and for this reason the definitions also should be examined. If (e.g.) any one describes what betokens and what produces health as 'related commensurably to health', we must not desist but go on to examine in what sense he has used the term 'commensurably' in each case, e.g. if in the latter case it means that 'it is of the right amount to produce health', whereas in the for it means that 'it is such as to betoken what kind of state prevails'.

Topics: The examination of likeness is useful with a view both to inductive arguments and to hypothetical reasonings, and also with a view to the rendering of definitions. It is useful for inductive arguments, because it is by means of an induction of individuals in cases that are alike that we claim to bring the universal in evidence: for it is not easy to do this if we do not know the points of likeness. It is useful for hypothetical reasonings because it is a general opinion that among similars what is true of one is true also of the rest. If, then, with regard to any of them we are well supplied with matter for a discussion, we shall secure a preliminary admission that however it is in these cases, so it is also in the case before us: then when we have shown the former we shall have shown, on the strength of the hypothesis, the matter before us as well: for we have first made the hypothesis that however it is in these cases, so it is also in the case before us, and have then proved the point as regards these cases. It is useful for the rendering of definitions because, if we are able to see in one glance what is the same in each individual case of it, we shall be at no loss into what genus we ought to put the object before us when we define it: for of the common predicates that which is most definitely in the category of essence is likely to be the genus. Likewise, also, in the case of objects widely divergent, the examination of likeness is useful for purposes of definition, e.g. the sameness of a calm at sea, and windlessness in the air (each being a form of rest), and of a point on a line and the unit in number—each being a starting point. If, then, we render as the genus what is common to all the cases, we shall get the credit of defining not inappropriately. Definition-mongers too nearly always render them in this way: they declare the unit to be the starting-point of number, and the point the starting-point of a line. It is clear, then, that they place them in that which is common to both as their genus.

Topics: Of problems some are universal, others particular. Universal problems are such as 'Every pleasure is good' and 'No pleasure is good'; particular problems are such as 'Some pleasure is good' and 'Some pleasure is not good'. The methods of establishing and overthrowing a view universally are common to both kinds of problems; for when we have shown that a predicate belongs in every case, we shall also have shown that it belongs in some cases. Likewise, also, if we show that it does not belong in any case, we shall also have shown that it does not belong in every case. First, then, we must speak of the methods of overthrowing a view universally, because such are common to both universal and particular problems, and because people more usually introduce theses asserting a predicate than denying it, while those who argue with them overthrow it. The conversion of an appropriate name which is drawn from the element 'accident' is an extremely precarious thing; for in the case of accidents and in no other it is possible for something to be true conditionally and not universally. Names drawn from the elements 'definition' and 'property' and 'genus' are bound to be convertible; e.g. if 'to be an animal that walks on two feet is an attribute of S', then it will be true by conversion to say that 'S is an animal that walks on two feet'. Likewise, also, if drawn from the genus; for if 'to be an animal is an attribute of S', then 'S is an animal'. The same is true also in the case of a property; for if 'to be capable of learning grammar is an attribute of S', then 'S will be capable of learning grammar'. For none of these attributes can possibly belong or not belong in part; they must either belong or not belong absolutely. In the case of accidents, on the other hand, there is nothing to prevent an attribute (e.g. whiteness or justice) belonging in part, so that it is not enough to show that whiteness or justice is an attribute of a man in order to show that he is white or just; for it is open to dispute it and say that he is white or just in part only. Conversion, then, is not a necessary process in the case of accidents.

Topics: Now one commonplace rule is to look and see if a man has ascribed as an accident what belongs in some other way. This mistake is most commonly made in regard to the genera of things, e.g. if one were to say that white happens (accidit) to be a colour—for being a colour does not happen by accident to white, but colour is its genus. The assertor may of course define it so in so many words, saying (e.g.) that 'Justice happens (accidit) to be a virtue'; but often even without such definition it is obvious that he has rendered the genus as an accident; e.g. suppose that one were to say that whiteness is coloured or that walking is in motion. For a predicate drawn from the genus is never ascribed to the species in an inflected form, but always the genera are predicated of their species literally; for the species take on both the name and the definition of their genera. A man therefore who says that white is 'coloured' has not rendered 'coloured' as its genus, seeing that he has used an inflected form, nor yet as its property or as its definition: for the definition and property of a thing belong to it and to nothing else, whereas many things besides white are coloured, e.g. a log, a stone, a man, and a horse. Clearly then he renders it as an accident.

Topics: Another rule is to make definitions both of an accident and of its subject, either of both separately or else of one of them, and then look and see if anything untrue has been assumed as true in the definitions. Thus (e.g.) to see if it is possible to wrong a god, ask what is 'to wrong'? For if it be 'to injure deliberately', clearly it is not possible for a god to be wronged: for it is impossible that God should be injured. Again, to see if the good man is jealous, ask who is the 'jealous' man and what is 'jealousy'. For if 'jealousy' is pain at the

apparent success of some well-behaved person, clearly the good man is not jealous: for then he would be bad. Again, to see if the indignant man is jealous, ask who each of them is: for then it will be obvious whether the statement is true or false; e.g. if he is 'jealous' who grieves at the successes of the good, and he is 'indignant' who grieves at the successes of the evil, then clearly the indignant man would not be jealous. A man should substitute definitions also for the terms contained in his definitions, and not stop until he comes to a familiar term: for often if the definition be rendered whole, the point at issue is not cleared up, whereas if for one of the terms used in the definition a definition be stated, it becomes obvious.

Topics: If you are not well equipped with an argument against the assertion, look among the definitions, real or apparent, of the thing before you, and if one is not enough, draw upon several. For it will be easier to attack people when committed to a definition: for an attack is always more easily made on definitions.

Topics: Moreover, if in any character one thing exceeds and another falls short of the same standard; also, if the one exceeds something which exceeds a given standard, while the other does not reach that standard, then clearly the first named thing exhibits that character in a greater degree. Moreover, you should judge by means of addition, and see if A when added to the same thing as B imparts to the whole such and such a character in a more marked degree than B, or if, when added to a thing which exhibits that character in a less degree, it imparts that character to the whole in a greater degree. Likewise, also, you may judge by means of subtraction: for a thing upon whose subtraction the remainder exhibits such and such a character in a less degree, itself exhibits that character in a greater degree. Also, things exhibit such and such a character in a greater degree if more free from admixture with their contraries; e.g. that is whiter which is more free from admixture with black. Moreover, apart from the rules given above, that has such and such a character in greater degree which admits in a greater degree of the definition proper to the given character; e.g. if the definition of 'white' be 'a colour which pierces the vision', then that is whiter which is in a greater degree a colour that pierces the vision.

Topics: If the problem be indefinite, it is possible to overthrow a statement in only one way; e.g. if a man has asserted that pleasure is good or is not good, without any further definition. For if he meant that a particular pleasure is good, you must show universally that no pleasure is good, if the proposition in question is to be demolished. And likewise, also, if he meant that some particular pleasure is not good you must show universally that all pleasure is good: it is impossible to demolish it in any other way. For if we show that some particular pleasure is not good or is good, the proposition in question is not yet demolished. It is clear, then, that it is possible to demolish an indefinite statement in one way only, whereas it can be established in two ways: for whether we show universally that all pleasure is good, or whether we show that a particular pleasure is good, the proposition in question will have been proved. Likewise, also, supposing we are required to argue that some particular pleasure is not good, if we show that no pleasure is good or that a particular pleasure is not good, we shall have produced an argument in both ways, both universally and in particular, to show that some particular pleasure is not good. If, on the other hand, the statement made be definite, it will be possible to demolish it in two ways; e.g. if it be maintained that it is an attribute of some particular pleasure to be good, while of some it is not: for whether it be shown that all pleasure, or that no pleasure, is good, the

proposition in question will have been demolished. If, however, he has stated that only one single pleasure is good, it is possible to demolish it in three ways: for by showing that all pleasure, or that no pleasure, or that more than one pleasure, is good, we shall have demolished the statement in question. If the statement be made still more definite, e.g. that prudence alone of the virtues is knowledge, there are four ways of demolishing it: for if it be shown that all virtue is knowledge, or that no virtue is so, or that some other virtue (e.g. justice) is so, or that prudence itself is not knowledge, the proposition in question will have been demolished.

Topics: NEXT we must go on to examine questions relating to Genus and Property. These are elements in the questions that relate to definitions, but dialecticians seldom address their inquiries to these by themselves. If, then, a genus be suggested for something that is, first take a look at all objects which belong to the same genus as the thing mentioned, and see whether the genus suggested is not predicated of one of them, as happens in the case of an accident: e.g. if 'good' be laid down to be the genus of 'pleasure', see whether some particular pleasure be not good: for, if so, clearly good' is not the genus of pleasure: for the genus is predicated of all the members of the same species. Secondly, see whether it be predicated not in the category of essence, but as an accident, as 'white' is predicated of 'snow', or 'self-moved' of the soul. For 'snow' is not a kind of 'white', and therefore 'white' is not the genus of snow, nor is the soul a kind of 'moving object': its motion is an accident of it, as it often is of an animal to walk or to be walking. Moreover, 'moving' does not seem to indicate the essence, but rather a state of doing or of having something done to it. Likewise, also, 'white': for it indicates not the essence of snow, but a certain quality of it. So that neither of them is predicated in the category of 'essence'.

Topics: Especially you should take a look at the definition of Accident, and see whether it fits the genus mentioned, as (e.g.) is also the case in the instances just given. For it is possible for a thing to be and not to be self-moved, and likewise, also, for it to be and not to be white. So that neither of these attributes is the genus but an accident, since we were saying that an accident is an attribute which can belong to a thing and also not belong.

Topics: Again, see whether it be necessary or possible for the genus to partake of the object which has been placed in the genus. 'To partake' is defined as 'to admit the definition of that which is partaken. Clearly, therefore, the species partake of the genera, but not the genera of the species: for the species admits the definition of the genus, whereas the genus does not admit that of the species. You must look, therefore, and see whether the genus rendered partakes or can possibly partake of the species, e.g. if any one were to render anything as genus of 'being' or of 'unity': for then the result will be that the genus partakes of the species: for of everything that is, 'being' and 'unity' are predicated, and therefore their definition as well.

Topics: Look, also, at the definitions of the genera, and see whether they apply both to the given species and to the objects which partake of the species. For of necessity the definitions of its genera must be predicated of the species and of the objects which partake of the species: if, then, there be anywhere a discrepancy, clearly what has been rendered is not the genus.

Topics: Moreover, see whether he has placed the genus inside the species, e.g. by taking 'contact' to be a 'juncture', or 'mixture' a 'fusion', or, as in Plato's definition, 'locomotion' to

be the same as 'carriage'. For there is no necessity that contact should be juncture: rather, conversely, juncture must be contact: for what is in contact is not always joined, though what is joined is always in contact. Likewise, also, in the remaining instances: for mixture is not always a 'fusion' (for to mix dry things does not fuse them), nor is locomotion always 'carriage'. For walking is not generally thought to be carriage: for 'carriage' is mostly used of things that change one place for another involuntarily, as happens in the case of inanimate things. Clearly, also, the species, in the instances given, has a wider denotation than the genus, whereas it ought to be vice versa.

Topics:2 Again, see if to an affection he has ascribed as genus the object of which it is an affection, by defining (e.g.) wind as 'air in motion'. Rather, wind is 'a movement of air': for the same air persists both when it is in motion and when it is still. Hence wind is not 'air' at all: for then there would also have been wind when the air was not in motion, seeing that the same air which formed the wind persists. Likewise, also, in other cases of the kind. Even, then, if we ought in this instance to admit the point that wind is 'air in motion', yet we should accept a definition of the kind, not about all those things of which the genus is not true, but only in cases where the genus rendered is a true predicate. For in some cases, e.g. 'mud' or 'snow', it is not generally held to be true. For people tell you that snow is 'frozen water' and mud is earth mixed with moisture', whereas snow is not water, nor mud earth, so that neither of the terms rendered could be the genus: for the genus should be true of all its species. Likewise neither is wine 'fermented water', as Empedocles speaks of 'water fermented in wood'; for it simply is not water at all.

Topics: Next, for destructive purposes, see whether the same term has been repeated in the property. For people often do this undetected in rendering 'properties' also, just as they do in their 'definitions' as well: but a property to which this has happened will not have been correctly stated: for the repetition of it confuses the hearer; thus inevitably the meaning becomes obscure, and further, such people are thought to babble. Repetition of the same term is likely to happen in two ways; one is, when a man repeatedly uses the same word, as would happen if any one were to render, as a property of fire, 'the body which is the most rarefied of bodies' (for he has repeated the word 'body'); the second is, if a man replaces words by their definitions, as would happen if any one were to render, as a property of earth, 'the substance which is by its nature most easily of all bodies borne downwards in space', and were then to substitute 'substances of such and such a kind' for the word 'bodies': for 'body' and 'a substance of such and such a kind' mean one and the same thing. For he will have repeated the word 'substance', and accordingly neither of the properties would be correctly stated. For constructive purposes, on the other hand, see whether he avoids ever repeating the same term; for then the property will in this respect have been correctly rendered. Thus (e.g.) seeing that he who has stated 'animal capable of acquiring knowledge' as a property of man has avoided repeating the same term several times, the property would in this respect have been correctly rendered of man.

Topics: Next, for destructive purposes, see whether he has rendered in the property any such term as is a universal attribute. For one which does not distinguish its subject from other things is useless, and it is the business of the language of 'properties', as also of the language of definitions, to distinguish. In the case contemplated, therefore, the property will not have been correctly rendered. Thus (e.g.) a man who has stated that it is a property of knowledge to be a 'conception incontrovertible by argument, because of its unity', has used

in the property a term of that kind, viz. 'unity', which is a universal attribute; and therefore the property of knowledge could not have been correctly stated. For constructive purposes, on the other hand, see whether he has avoided all terms that are common to everything and used a term that distinguishes the subject from something: for then the property will in this respect have been correctly stated. Thus (e.g.) inasmuch as he who has said that it is a property of a 'living creature' to 'have a soul' has used no term that is common to everything, it would in this respect have been correctly stated to be a property of a 'living creature' to 'have a soul'.

Topics: Next, for destructive purposes see whether he renders more than one property of the same thing, without a definite proviso that he is stating more than one: for then the property will not have been correctly stated. For just as in the case of definitions too there should be no further addition beside the expression which shows the essence, so too in the case of properties nothing further should be rendered beside the expression that constitutes the property mentioned: for such an addition is made to no purpose. Thus (e.g.) a man who has said that it is a property of fire to be 'the most rarefied and lightest body' has rendered more than one property (for each term is a true predicate of fire alone); and so it could not be a correctly stated property of fire to be 'the most rarefied and lightest body'. On the other hand, for constructive purposes, see whether he has avoided rendering more than one property of the same thing, and has rendered one only: for then the property will in this respect have been correctly stated. Thus (e.g.) a man who has said that it is a property of a liquid to be a 'body adaptable to every shape' has rendered as its property a single character and not several, and so the property of 'liquid' would in this respect have been correctly stated.

Topics: Next, for destructive purposes, see whether he has rendered the definition as a property: for then the property will not have been correctly stated: for the property of a thing ought not to show its essence. Thus (e.g.) a man who has said that it is the property of man to be 'a walking, biped animal' has rendered a property of man so as to signify his essence, and so the property of man could not have been correctly rendered. For constructive purposes, on the other hand, see whether the property which he has rendered forms a predicate convertible with its subject, without, however, signifying its essence: for then the property will in this respect have been correctly rendered. Thus (e.g.) he who has stated that it is a property of man to be a 'naturally civilized animal' has rendered the property so as to be convertible with its subject, without, however, showing its essence, and so the property of man' would in this respect have been correctly rendered.

Topics: Next, for destructive purposes, see whether he has rendered the property without having placed the subject within its essence. For of properties, as also of definitions, the first term to be rendered should be the genus, and then the rest of it should be appended immediately afterwards, and should distinguish its subject from other things. Hence a property which is not stated in this way could not have been correctly rendered. Thus (e.g.) a man who has said that it is a property of a living creature to 'have a soul' has not placed 'living creature' within its essence, and so the property of a living creature could not have been correctly stated. For constructive purposes, on the other hand, see whether a man first places within its essence the subject whose property he is rendering, and then appends the rest: for then the property will in this respect have been correctly rendered. Thus (e.g.) he who has stated that it is a property of man to be an 'animal capable of receiving

knowledge', has rendered the property after placing the subject within its essence, and so the property of 'man' would in this respect have been correctly rendered.

Topics: Next, for destructive purposes, see if the property cannot possibly belong simultaneously, but must belong either as posterior or as prior to the attribute described in the name: for then what is stated to be a property will not be a property either never, or not always. Thus (e.g.) inasmuch as it is possible for the attribute 'walking through the market-place' to belong to an object as prior and as posterior to the attribute 'man', 'walking through the market-place' could not be a property of 'man' either never, or not always. For constructive purposes, on the other hand, see if it always and of necessity belongs simultaneously, without being either a definition or a differentia: for then what is stated not to be a property will be a property. Thus (e.g.) the attribute 'an animal capable of receiving knowledge' always and of necessity belongs simultaneously with the attribute 'man', and is neither differentia nor definition of its subject, and so 'an animal capable of receiving knowledge' would be a property of 'man'.

Topics: Next, for destructive purposes, see if he has stated a thing as a property of itself: for then what has been stated to be a property will not be a property. For a thing itself always shows its own essence, and what shows the essence is not a property but a definition. Thus (e.g.) he who has said that 'becoming' is a property of 'beautiful' has rendered the term as a property of itself (for 'beautiful' and 'becoming' are the same); and so 'becoming' could not be a property of 'beautiful'. For constructive purposes, on the other hand, see if he has avoided rendering a thing as a property of itself, but has yet stated a convertible predicate: for then what is stated not to be a property will be a property. Thus he who has stated 'animate substance' as a property of 'living-creature' has not stated 'living-creature' as a property of itself, but has rendered a convertible predicate, so that 'animate substance' would be a property of 'living-creature'.

Topics: THE discussion of Definitions falls into five parts. For you have to show either (1) that it is not true at all to apply the expression as well to that to which the term is applied (for the definition of Man ought to be true of every man); or (2) that though the object has a genus, he has failed to put the object defined into the genus, or to put it into the appropriate genus (for the framer of a definition should first place the object in its genus, and then append its differences: for of all the elements of the definition the genus is usually supposed to be the principal mark of the essence of what is defined): or (3) that the expression is not peculiar to the object (for, as we said above as well, a definition ought to be peculiar): or else (4) see if, though he has observed all the aforesaid cautions, he has yet failed to define the object, that is, to express its essence. (5) It remains, apart from the foregoing, to see if he has defined it, but defined it incorrectly.

Topics: Incorrectness falls into two branches: (1) first, the use of obscure language (for the language of a definition ought to be the very clearest possible, seeing that the whole purpose of rendering it is to make something known); (secondly, if the expression used be longer than is necessary: for all additional matter in a definition is superfluous. Again, each of the aforesaid branches is divided into a number of others.

Topics: One commonplace rule, then, in regard to obscurity is, See if the meaning intended by the definition involves an ambiguity with any other, e.g. 'Becoming is a passage into being', or 'Health is the balance of hot and cold elements'. Here 'passage' and 'balance'

are ambiguous terms: it is accordingly not clear which of the several possible senses of the term he intends to convey. Likewise also, if the term defined be used in different senses and he has spoken without distinguishing between them: for then it is not clear to which of them the definition rendered applies, and one can then bring a captious objection on the ground that the definition does not apply to all the things whose definition he has rendered: and this kind of thing is particularly easy in the case where the definer does not see the ambiguity of his terms. Or, again, the questioner may himself distinguish the various senses of the term rendered in the definition, and then institute his argument against each: for if the expression used be not adequate to the subject in any of its senses, it is clear that he cannot have defined it in any sense aright.

Topics: Another rule is, See if he has used a metaphorical expression, as, for instance, if he has defined knowledge as 'unsupplantable', or the earth as a 'nurse', or temperance as a 'harmony'. For a metaphorical expression is always obscure. It is possible, also, to argue sophistically against the user of a metaphorical expression as though he had used it in its literal sense: for the definition stated will not apply to the term defined, e.g. in the case of temperance: for harmony is always found between notes. Moreover, if harmony be the genus of temperance, then the same object will occur in two genera of which neither contains the other: for harmony does not contain virtue, nor virtue harmony. Again, see if he uses terms that are unfamiliar, as when Plato describes the eye as 'brow-shaded', or a certain spider as 'poison-fanged', or the marrow as 'bone-formed'. For an unusual phrase is always obscure.

Topics: Moreover, see if from the expression used the definition of the contrary be not clear; for definitions that have been correctly rendered also indicate their contraries as well. Or, again, see if, when it is merely stated by itself, it is not evident what it defines: just as in the works of the old painters, unless there were an inscription, the figures used to be unrecognizable.

Topics: If, then, the definition be not clear, you should proceed to examine on lines such as these. If, on the other hand, he has phrased the definition redundantly, first of all look and see whether he has used any attribute that belongs universally, either to real objects in general, or to all that fall under the same genus as the object defined: for the mention of this is sure to be redundant. For the genus ought to divide the object from things in general, and the differentia from any of the things contained in the same genus. Now any term that belongs to everything separates off the given object from absolutely nothing, while any that belongs to all the things that fall under the same genus does not separate it off from the things contained in the same genus. Any addition, then, of that kind will be pointless.

Topics: Or see if, though the additional matter may be peculiar to the given term, yet even when it is struck out the rest of the expression too is peculiar and makes clear the essence of the term. Thus, in the definition of man, the addition 'capable of receiving knowledge' is superfluous; for strike it out, and still the expression is peculiar and makes clear his essence. Speaking generally, everything is superfluous upon whose removal the remainder still makes the term that is being defined clear. Such, for instance, would also be the definition of the soul, assuming it to be stated as a 'self-moving number'; for the soul is just 'the self-moving', as Plato defined it. Or perhaps the expression used, though appropriate, yet does not declare the essence, if the word 'number' be eliminated. Which of the two is the real state of the case it is difficult to determine clearly: the right way to treat

the matter in all cases is to be guided by convenience. Thus (e.g.) it is said that the definition of phlegm is the 'undigested moisture that comes first off food'. Here the addition of the word 'undigested' is superfluous, seeing that 'the first' is one and not many, so that even when 'undigested' is left out the definition will still be peculiar to the subject: for it is impossible that both phlegm and also something else should both be the first to arise from the food. Or perhaps the phlegm is not absolutely the first thing to come off the food, but only the first of the undigested matters, so that the addition 'undigested' is required; for stated the other way the definition would not be true unless the phlegm comes first of all.

Topics: Moreover, see if anything contained in the definition fails to apply to everything that falls under the same species: for this sort of definition is worse than those which include an attribute belonging to all things universally. For in that case, if the remainder of the expression be peculiar, the whole too will be peculiar: for absolutely always, if to something peculiar anything whatever that is true be added, the whole too becomes peculiar. Whereas if any part of the expression do not apply to everything that falls under the same species, it is impossible that the expression as a whole should be peculiar: for it will not be predicated convertibly with the object; e.g. 'a walking biped animal six feet high': for an expression of that kind is not predicated convertibly with the term, because the attribute 'six feet high' does not belong to everything that falls under the same species.

Topics: Again, see if he has said the same thing more than once, saying (e.g.) 'desire' is a 'conation for the pleasant'. For 'desire' is always 'for the pleasant', so that what is the same as desire will also be 'for the pleasant'. Accordingly our definition of desire becomes 'conation for the pleasant': for the word 'desire' is the exact equivalent of the words 'conation for the pleasant', so that both alike will be 'for the pleasant'. Or perhaps there is no absurdity in this; for consider this instance:—Man is a biped': therefore, what is the same as man is a biped: but 'a walking biped animal' is the same as man, and therefore walking biped animal is a biped'. But this involves no real absurdity. For 'biped' is not a predicate of 'walking animal': if it were, then we should certainly have 'biped' predicated twice of the same thing; but as a matter of fact the subject said to be a biped is 'a walking biped animal', so that the word 'biped' is only used as a predicate once. Likewise also in the case of 'desire' as well: for it is not 'conation' that is said to be 'for the pleasant', but rather the whole idea, so that there too the predication is only made once. Absurdity results, not when the same word is uttered twice, but when the same thing is more than once predicated of a subject; e.g. if he says, like Xenocrates, that wisdom defines and contemplates reality: for definition is a certain type of contemplation, so that by adding the words 'and contemplates' over again he says the same thing twice over. Likewise, too, those fail who say that 'cooling' is 'the privation of natural heat'. For all privation is a privation of some natural attribute, so that the addition of the word 'natural' is superfluous: it would have been enough to say 'privation of heat', for the word 'privation' shows of itself that the heat meant is natural heat.

Topics: Whether, then, a man defines a thing correctly or incorrectly you should proceed to examine on these and similar lines. But whether he has mentioned and defined its essence or no, should be examined as follows: First of all, see if he has failed to make the definition through terms that are prior and more intelligible. For the reason why the definition is rendered is to make known the term stated, and we make things known by taking not any random terms, but such as are prior and more intelligible, as is done in

demonstrations (for so it is with all teaching and learning); accordingly, it is clear that a man who does not define through terms of this kind has not defined at all. Otherwise, there will be more than one definition of the same thing: for clearly he who defines through terms that are prior and more intelligible has also framed a definition, and a better one, so that both would then be definitions of the same object. This sort of view, however, does not generally find acceptance: for of each real object the essence is single: if, then, there are to be a number of definitions of the same thing, the essence of the object will be the same as it is represented to be in each of the definitions, and these representations are not the same, inasmuch as the definitions are different. Clearly, then, any one who has not defined a thing through terms that are prior and more intelligible has not defined it at all.

Topics: The statement that a definition has not been made through more intelligible terms may be understood in two senses, either supposing that its terms are absolutely less intelligible, or supposing that they are less intelligible to us: for either sense is possible. Thus absolutely the prior is more intelligible than the posterior, a point, for instance, than a line, a line than a plane, and a plane than a solid; just as also a unit is more intelligible than a number; for it is the prius and starting-point of all number. Likewise, also, a letter is more intelligible than a syllable. Whereas to us it sometimes happens that the converse is the case: for the solid falls under perception most of all—more than a plane—and a plane more than a line, and a line more than a point; for most people learn things like the former earlier than the latter; for any ordinary intelligence can grasp them, whereas the others require an exact and exceptional understanding.

Topics: Absolutely, then, it is better to try to make what is posterior known through what is prior, inasmuch as such a way of procedure is more scientific. Of course, in dealing with persons who cannot recognize things through terms of that kind, it may perhaps be necessary to frame the expression through terms that are intelligible to them. Among definitions of this kind are those of a point, a line, and a plane, all of which explain the prior by the posterior; for they say that a point is the limit of a line, a line of a plane, a plane of a solid. One must, however, not fail to observe that those who define in this way cannot show the essential nature of the term they define, unless it so happens that the same thing is more intelligible both to us and also absolutely, since a correct definition must define a thing through its genus and its differentiae, and these belong to the order of things which are absolutely more intelligible than, and prior to, the species. For annul the genus and differentia, and the species too is annulled, so that these are prior to the species. They are also more intelligible; for if the species be known, the genus and differentia must of necessity be known as well (for any one who knows what a man is knows also what 'animal' and 'walking' are), whereas if the genus or the differentia be known it does not follow of necessity that the species is known as well: thus the species is less intelligible. Moreover, those who say that such definitions, viz. those which proceed from what is intelligible to this, that, or the other man, are really and truly definitions, will have to say that there are several definitions of one and the same thing. For, as it happens, different things are more intelligible to different people, not the same things to all; and so a different definition would have to be rendered to each several person, if the definition is to be constructed from what is more intelligible to particular individuals. Moreover, to the same people different things are more intelligible at different times; first of all the objects of sense; then, as they become more sharpwitted, the converse; so that those who hold that a

definition ought to be rendered through what is more intelligible to particular individuals would not have to render the same definition at all times even to the same person. It is clear, then, that the right way to define is not through terms of that kind, but through what is absolutely more intelligible: for only in this way could the definition come always to be one and the same. Perhaps, also, what is absolutely intelligible is what is intelligible, not to all, but to those who are in a sound state of understanding, just as what is absolutely healthy is what is healthy to those in a sound state of body. All such points as this ought to be made very precise, and made use of in the course of discussion as occasion requires. The demolition of a definition will most surely win a general approval if the definer happens to have framed his expression neither from what is absolutely more intelligible nor yet from what is so to us.

Topics: One form, then, of the failure to work through more intelligible terms is the exhibition of the prior through the posterior, as we remarked before.' Another form occurs if we find that the definition has been rendered of what is at rest and definite through what is indefinite and in motion: for what is still and definite is prior to what is indefinite and in motion.

Topics: (1) The first is when an opposite has been defined through its opposite, e.g.i. good through evil: for opposites are always simultaneous by nature. Some people think, also, that both are objects of the same science, so that the one is not even more intelligible than the other. One must, however, observe that it is perhaps not possible to define some things in any other way, e.g. the double without the half, and all the terms that are essentially relative: for in all such cases the essential being is the same as a certain relation to something, so that it is impossible to understand the one term without the other, and accordingly in the definition of the one the other too must be embraced. One ought to learn up all such points as these, and use them as occasion may seem to require.

Topics: (2) Another is—if he has used the term defined itself. This passes unobserved when the actual name of the object is not used, e.g. supposing any one had defined the sun as a star that appears by day'. For in bringing in 'day' he brings in the sun. To detect errors of this sort, exchange the word for its definition, e.g. the definition of 'day' as the 'passage of the sun over the earth'. Clearly, whoever has said 'the passage of the sun over the earth' has said 'the sun', so that in bringing in the 'day' he has brought in the sun.

Topics: Generally speaking, then, one commonplace rule relates to the failure to frame the expression by means of terms that are prior and more intelligible: and of this the subdivisions are those specified above. A second is, see whether, though the object is in a genus, it has not been placed in a genus. This sort of error is always found where the essence of the object does not stand first in the expression, e.g. the definition of 'body' as 'that which has three dimensions', or the definition of 'man', supposing any one to give it, as 'that which knows how to count': for it is not stated what it is that has three dimensions, or what it is that knows how to count: whereas the genus is meant to indicate just this, and is submitted first of the terms in the definition.

Topics: Moreover, see if, while the term to be defined is used in relation to many things, he has failed to render it in relation to all of them; as (e.g.) if he define 'grammar' as the 'knowledge how to write from dictation': for he ought also to say that it is a knowledge how to read as well. For in rendering it as 'knowledge of writing' has no more defined it than by

rendering it as 'knowledge of reading': neither in fact has succeeded, but only he who mentions both these things, since it is impossible that there should be more than one definition of the same thing. It is only, however, in some cases that what has been said corresponds to the actual state of things: in some it does not, e.g. all those terms which are not used essentially in relation to both things: as medicine is said to deal with the production of disease and health; for it is said essentially to do the latter, but the former only by accident: for it is absolutely alien to medicine to produce disease. Here, then, the man who renders medicine as relative to both of these things has not defined it any better than he who mentions the one only. In fact he has done it perhaps worse, for any one else besides the doctor is capable of producing disease.

Topics: Moreover, see if he divides the genus by a negation, as those do who define line as 'length without breadth': for this means simply that it has not any breadth. The genus will then be found to partake of its own species: for, since of everything either an affirmation or its negation is true, length must always either lack breadth or possess it, so that 'length' as well, i.e. the genus of 'line', will be either with or without breadth. But 'length without breadth' is the definition of a species, as also is 'length with breadth': for 'without breadth' and 'with breadth' are differentiae, and the genus and differentia constitute the definition of the species. Hence the genus would admit of the definition of its species. Likewise, also, it will admit of the definition of the differentia, seeing that one or the other of the aforesaid differentiae is of necessity predicated of the genus. The usefulness of this principle is found in meeting those who assert the existence of 'Ideas': for if absolute length exist, how will it be predicable of the genus that it has breadth or that it lacks it? For one assertion or the other will have to be true of 'length' universally, if it is to be true of the genus at all: and this is contrary to the fact: for there exist both lengths which have, and lengths which have not, breadth. Hence the only people against whom the rule can be employed are those who assert that a genus is always numerically one; and this is what is done by those who assert the real existence of the 'Ideas'; for they allege that absolute length and absolute animal are the genus.

Topics:3 Look and see also if the definer renders each relative term relatively to its natural purpose: for while in some cases the particular relative term can be used in relation to its natural purpose only and to nothing else, some can be used in relation to something else as well. Thus sight can only be used for seeing, but a strigil can also be used to dip up water. Still, if any one were to define a strigil as an instrument for dipping water, he has made a mistake: for that is not its natural function [An instrument used in ancient Greece and Rome for scraping the skin after a bath.]. The definition of a thing's natural function is 'that for which it would be used by the prudent man, acting as such, and by the science that deals specially with that thing'.

Topics:5 Moreover, if the thing of which the term defined has been stated to be an affection or disposition, or whatever it may be, be unable to admit it, the definer has made a mistake. For every disposition and every affection is formed naturally in that of which it is an affection or disposition, as knowledge, too, is formed in the soul, being a disposition of soul. Sometimes, however, people make bad mistakes in matters of this sort, e.g. all those who say that 'sleep' is a 'failure of sensation', or that 'perplexity' is a state of 'equality between contrary reasonings', or that 'pain' is a 'violent disruption of parts that are naturally conjoined'. For sleep is not an attribute of sensation, whereas it ought to be, if it

is a failure of sensation. Likewise, perplexity is not an attribute of opposite reasonings, nor pain of parts naturally conjoined: for then inanimate things will be in pain, since pain will be present in them. Similar in character, too, is the definition of 'health', say, as a 'balance of hot and cold elements': for then health will be necessarily exhibited by the hot and cold elements: for balance of anything is an attribute inherent in those things of which it is the balance, so that health would be an attribute of them. Moreover, people who define in this way put effect for cause, or cause for effect. For the disruption of parts naturally conjoined is not pain, but only a cause of pain: nor again is a failure of sensation sleep, but the one is the cause of the other: for either we go to sleep because sensation fails, or sensation fails because we go to sleep. Likewise also an equality between contrary reasonings would be generally considered to be a cause of perplexity: for it is when we reflect on both sides of a question and find everything alike to be in keeping with either course that we are perplexed which of the two we are to do.

Topics:6 Moreover, with regard to all periods of time look and see whether there be any discrepancy between the differentia and the thing defined: e.g. supposing the 'immortal' to be defined as a 'living thing immune at present from destruction'. For a living thing that is immune 'at present' from destruction will be immortal 'at present'. Possibly, indeed, in this case this result does not follow, owing to the ambiguity of the words 'immune at present from destruction': for it may mean either that the thing has not been destroyed at present, or that it cannot be destroyed at present, or that at present it is such that it never can be destroyed. Whenever, then, we say that a living thing is at present immune from destruction, we mean that it is at present a living thing of such a kind as never to be destroyed: and this is equivalent to saying that it is immortal, so that it is not meant that it is immortal only at present. Still, if ever it does happen that what has been rendered according to the definition belongs in the present only or past, whereas what is meant by the word does not so belong, then the two could not be the same. So, then, this commonplace rule ought to be followed, as we have said.

Topics: You should look and see also whether the term being defined is applied in consideration of something other than the definition rendered. Suppose (e.g.) a definition of 'justice' as the 'ability to distribute what is equal'. This would not be right, for 'just' describes rather the man who chooses, than the man who is able to distribute what is equal: so that justice could not be an ability to distribute what is equal: for then also the most just man would be the man with the most ability to distribute what is equal.

Topics: Moreover, see if the thing admits of degrees, whereas what is rendered according to the definition does not, or, vice versa, what is rendered according to the definition admits of degrees while the thing does not. For either both must admit them or else neither, if indeed what is rendered according to the definition is the same as the thing. Moreover, see if, while both of them admit of degrees, they yet do not both become greater together: e.g. suppose sexual love to be the desire for intercourse: for he who is more intensely in love has not a more intense desire for intercourse, so that both do not become intensified at once: they certainly should, however, had they been the same thing.

Topics: Moreover, suppose two things to be before you, see if the term to be defined applies more particularly to the one to which the content of the definition is less applicable. Take, for instance, the definition of 'fire' as the 'body that consists of the most rarefied particles'. For 'fire' denotes flame rather than light, but flame is less the body that consists

of the most rarefied particles than is light: whereas both ought to be more applicable to the same thing, if they had been the same. Again, see if the one expression applies alike to both the objects before you, while the other does not apply to both alike, but more particularly to one of them.

Topics: Moreover, see if he renders the definition relative to two things taken separately: thus, 'the beautiful' is 'what is pleasant to the eyes or to the ears': or 'the real' is 'what is capable of being acted upon or of acting'. For then the same thing will be both beautiful and not beautiful, and likewise will be both real and not real. For 'pleasant to the ears' will be the same as 'beautiful', so that 'not pleasant to the ears' will be the same as 'not beautiful': for of identical things the opposites, too, are identical, and the opposite of 'beautiful' is 'not beautiful', while of 'pleasant to the ears' the opposite is not pleasant to the ears: clearly, then, 'not pleasant to the ears' is the same thing as 'not beautiful'. If, therefore, something be pleasant to the eyes but not to the ears, it will be both beautiful and not beautiful. In like manner we shall show also that the same thing is both real and unreal.

Topics: Moreover, of both genera and differentiae and all the other terms rendered in definitions you should frame definitions in lieu of the terms, and then see if there be any discrepancy between them.

Topics: If the term defined be relative, either in itself or in respect of its genus, see whether the definition fails to mention that to which the term, either in itself or in respect of its genus, is relative, e.g. if he has defined 'knowledge' as an 'incontrovertible conception' or 'wishing' as 'painless conation'. For of everything relative the essence is relative to something else, seeing that the being of every relative term is identical with being in a certain relation to something. He ought, therefore, to have said that knowledge is 'conception of a knowable' and that wishing is 'conation for a good'. Likewise, also, if he has defined 'grammar' as 'knowledge of letters': whereas in the definition there ought to be rendered either the thing to which the term itself is relative, or that, whatever it is, to which its genus is relative. Or see if a relative term has been described not in relation to its end, the end in anything being whatever is best in it or gives its purpose to the rest. Certainly it is what is best or final that should be stated, e.g. that desire is not for the pleasant but for pleasure: for this is our purpose in choosing what is pleasant as well.

Topics: Moreover, in the case of conations, and in any other cases where it applies, see if the word 'apparent' is left out, e.g. 'wishing is a conation after the good', or 'desire is a conation after the pleasant'—instead of saying 'the apparently good', or 'pleasant'. For often those who exhibit the conation do not perceive what is good or pleasant, so that their aim need not be really good or pleasant, but only apparently so. They ought, therefore, to have rendered the definition also accordingly. On the other hand, any one who maintains the existence of Ideas ought to be brought face to face with his Ideas, even though he does render the word in question: for there can be no Idea of anything merely apparent: the general view is that an Idea is always spoken of in relation to an Idea: thus absolute desire is for the absolutely pleasant, and absolute wishing is for the absolutely good; they therefore cannot be for an apparent good or an apparently pleasant: for the existence of an absolutely-apparently-good or pleasant would be an absurdity.

Topics: Moreover, if the definition be of the state of anything, look at what is in the state, while if it be of what is in the state, look at the state: and likewise also in other cases of the kind. Thus if the pleasant be identical with the beneficial, then, too, the man who is pleased is benefited. Speaking generally, in definitions of this sort it happens that what the definer defines is in a sense more than one thing: for in defining knowledge, a man in a sense defines ignorance as well, and likewise also what has knowledge and what lacks it, and what it is to know and to be ignorant. For if the first be made clear, the others become in a certain sense clear as well. We have, then, to be on our guard in all such cases against discrepancy, using the elementary principles drawn from consideration of contraries and of coordinates.

Topics: See, also, if the opposite of the term has the opposite definition, whether (e.g.) the definition of 'half' is the opposite of that of 'double': for if 'double' is 'that which exceeds another by an equal amount to that other', 'half' is 'that which is exceeded by an amount equal to itself'. In the same way, too, with contraries. For to the contrary term will apply the definition that is contrary in some one of the ways in which contraries are conjoined. Thus (e.g.) if 'useful' = 'productive of good', 'injurious' = 'productive of evil' or 'destructive of good', for one or the other of these is bound to be contrary to the term originally used. Suppose, then, neither of these things to be the contrary of the term originally used, then clearly neither of the definitions rendered later could be the definition of the contrary of the term originally defined: and therefore the definition originally rendered of the original term has not been rightly rendered either. Seeing, moreover, that of contraries, the one is sometimes a word forced to denote the privation of the other, as (e.g.) inequality is generally held to be the privation of equality (for 'unequal' merely describes things that are not equal'), it is therefore clear that that contrary whose form denotes the privation must of necessity be defined through the other; whereas the other cannot then be defined through the one whose form denotes the privation; for else we should find that each is being interpreted by the other. We must in the case of contrary terms keep an eye on this mistake, e.g. supposing any one were to define equality as the contrary of inequality: for then he is defining it through the term which denotes privation of it. Moreover, a man who so defines is bound to use in his definition the very term he is defining; and this becomes clear, if for the word we substitute its definition. For to say 'inequality' is the same as to say 'privation of equality'. Therefore equality so defined will be 'the contrary of the privation of equality', so that he would have used the very word to be defined. Suppose, however, that neither of the contraries be so formed as to denote privation, but yet the definition of it be rendered in a manner like the above, e.g. suppose 'good' to be defined as 'the contrary of evil', then, since it is clear that 'evil' too will be 'the contrary of good' (for the definition of things that are contrary in this must be rendered in a like manner), the result again is that he uses the very term being defined: for 'good' is inherent in the definition of 'evil'. If, then, 'good' be the contrary of evil, and evil be nothing other than the 'contrary of good', then 'good' will be the 'contrary of the contrary of good'. Clearly, then, he has used the very word to be defined.

Topics: Moreover, see whether the like inflexions in the definition apply to the like inflexions of the term; e.g. if 'beneficial' means 'productive of health', does 'beneficially' mean productively of health' and a 'benefactor' a 'producer of health'?

Topics: Look too and see whether the definition given will apply to the Idea as well. For in some cases it will not do so; e.g. in Plato's definition where he ["Platonic definition where

he” is the original translation, “he” is not “Platonic” j.c.] adds the word ‘mortal’ in his definitions of living creatures: for the Idea (e.g. the absolute Man) is not mortal, so that the definition will not fit the Idea. So always wherever the words ‘capable of acting on’ or ‘capable of being acted upon’ are added, the definition and the Idea are absolutely bound to be discrepant: for those who assert the existence of Ideas hold that they are incapable of being acted upon, or of motion. In dealing with these people even arguments of this kind are useful.

Topics: Further, see if he has rendered a single common definition of terms that are used ambiguously. For terms whose definition corresponding their common name is one and the same, are synonymous; if, then, the definition applies in a like manner to the whole range of the ambiguous term, it is not true of any one of the objects described by the term. This is, moreover, what happens to Dionysius’ definition of ‘life’ when stated as ‘a movement of a creature sustained by nutriment, congenitally present with it’: for this is found in plants as much as in animals, whereas ‘life’ is generally understood to mean not one kind of thing only, but to be one thing in animals and another in plants. It is possible to hold the view that life is a synonymous term and is always used to describe one thing only, and therefore to render the definition in this way on purpose: or it may quite well happen that a man may see the ambiguous character of the word, and wish to render the definition of the one sense only, and yet fail to see that he has rendered a definition common to both senses instead of one peculiar to the sense he intends. In either case, whichever course he pursues, he is equally at fault. Since ambiguous terms sometimes pass unobserved, it is best in questioning to treat such terms as though they were synonymous (for the definition of the one sense will not apply to the other, so that the answerer will be generally thought not to have defined it correctly, for to a synonymous term the definition should apply in its full range), whereas in answering you should yourself distinguish between the senses. Further, as some answerers call ‘ambiguous’ what is really synonymous, whenever the definition rendered fails to apply universally, and, vice versa, call synonymous what is really ambiguous supposing their definition applies to both senses of the term, one should secure a preliminary admission on such points, or else prove beforehand that so-and-so is ambiguous or synonymous, as the case may be: for people are more ready to agree when they do not foresee what the consequence will be. If, however, no admission has been made, and the man asserts that what is really synonymous is ambiguous because the definition he has rendered will not apply to the second sense as well, see if the definition of this second meaning applies also to the other meanings: for if so, this meaning must clearly be synonymous with those others. Otherwise, there will be more than one definition of those other meanings, for there are applicable to them two distinct definitions in explanation of the term, viz. the one previously rendered and also the later one. Again, if any one were to define a term used in several senses, and, finding that his definition does not apply to them all, were to contend not that the term is ambiguous, but that even the term does not properly apply to all those senses, just because his definition will not do so either, then one may retort to such a man that though in some things one must not use the language of the people, yet in a question of terminology one is bound to employ the received and traditional usage and not to upset matters of that sort.

Topics: Suppose now that a definition has been rendered of some complex term, take away the definition of one of the elements in the complex, and see if also the rest of the

definition defines the rest of it: if not, it is clear that neither does the whole definition define the whole complex. Suppose, e.g. that some one has defined a 'finite straight line' as 'the limit of a finite plane, such that its centre is in a line with its extremes'; if now the definition of a finite line' be the 'limit of a finite plane', the rest (viz. 'such that its centre is in a line with its extremes') ought to be a definition of straight'. But an infinite straight line has neither centre nor extremes and yet is straight so that this remainder does not define the remainder of the term.

Topics: Moreover, if the term defined be a compound notion, see if the definition rendered be equimembral with the term defined. A definition is said to be equimembral with the term defined when the number of the elements compounded in the latter is the same as the number of nouns and verbs in the definition. For the exchange in such cases is bound to be merely one of term for term, in the case of some if not of all, seeing that there are no more terms used now than formerly; whereas in a definition terms ought to be rendered by phrases, if possible in every case, or if not, in the majority. For at that rate, simple objects too could be defined by merely calling them by a different name, e.g. 'cloak' instead of 'doublet'.

Topics: The mistake is even worse, if actually a less well known term be substituted, e.g. 'pellucid mortal' for 'white man': for it is no definition, and moreover is less intelligible when put in that form.

Topics: Moreover, see if in replacing one of the terms by something else he has exchanged the genus and not the differentia, as in the example just given: for 'speculative' is a less familiar term than knowledge; for the one is the genus and the other the differentia, and the genus is always the most familiar term of all; so that it is not this, but the differentia, that ought to have been changed, seeing that it is the less familiar. It might be held that this criticism is ridiculous: because there is no reason why the most familiar term should not describe the differentia, and not the genus; in which case, clearly, the term to be altered would also be that denoting the genus and not the differentia. If, however, a man is substituting for a term not merely another term but a phrase, clearly it is of the differentia rather than of the genus that a definition should be rendered, seeing that the object of rendering the definition is to make the subject familiar; for the differentia is less familiar than the genus.

Topics: If he has rendered the definition of the differentia, see whether the definition rendered is common to it and something else as well: e.g. whenever he says that an odd number is a 'number with a middle', further definition is required of how it has a middle: for the word 'number' is common to both expressions, and it is the word 'odd' for which the phrase has been substituted. Now both a line and a body have a middle, yet they are not 'odd'; so that this could not be a definition of 'odd'. If, on the other hand, the phrase 'with a middle' be used in several senses, the sense here intended requires to be defined. So that this will either discredit the definition or prove that it is no definition at all.

Topics: Again, see if the term of which he renders the definition is a reality, whereas what is contained in the definition is not, e.g. Suppose 'white' to be defined as 'colour mingled with fire': for what is bodiless cannot be mingled with body, so that 'colour' 'mingled with fire' could not exist, whereas 'white' does exist.

Topics: Moreover, those who in the case of relative terms do not distinguish to what the object is related, but have described it only so as to include it among too large a number of things, are wrong either wholly or in part; e.g. suppose some one to have defined 'medicine' as a science of Reality'. For if medicine be not a science of anything that is real, the definition is clearly altogether false; while if it be a science of some real thing, but not of another, it is partly false; for it ought to hold of all reality, if it is said to be of Reality essentially and not accidentally: as is the case with other relative terms: for every object of knowledge is a term relative to knowledge: likewise, also, with other relative terms, inasmuch as all such are convertible. Moreover, if the right way to render account of a thing be to render it as it is not in itself but accidentally, then each and every relative term would be used in relation not to one thing but to a number of things. For there is no reason why the same thing should not be both real and white and good, so that it would be a correct rendering to render the object in relation to any one whatsoever of these, if to render what it is accidentally be a correct way to render it. It is, moreover, impossible that a definition of this sort should be peculiar to the term rendered: for not only but the majority of the other sciences too, have for their object some real thing, so that each will be a science of reality. Clearly, then, such a definition does not define any science at all; for a definition ought to be peculiar to its own term, not general.

Topics: Sometimes, again, people define not the thing but only the thing in a good or perfect condition. Such is the definition of a rhetorician as 'one who can always see what will persuade in the given circumstances, and omit nothing'; or of a thief, as 'one who pilfers in secret': for clearly, if they each do this, then the one will be a good rhetorician, and the other a good thief: whereas it is not the actual pilfering in secret, but the wish to do it, that constitutes the thief.

Topics: Again, see if he has rendered what is desirable for its own sake as desirable for what it produces or does, or as in any way desirable because of something else, e.g. by saying that justice is 'what preserves the laws' or that wisdom is 'what produces happiness'; for what produces or preserves something else is one of the things desirable for something else. It might be said that it is possible for what is desirable in itself to be desirable for something else as well: but still to define what is desirable in itself in such a way is none the less wrong: for the essence contains par excellence what is best in anything, and it is better for a thing to be desirable in itself than to be desirable for something else, so that this is rather what the definition too ought to have indicated.

Topics: See also whether in defining anything a man has defined it as an 'A and B', or as a 'product of A and B' or as an 'A B'. If he defines it as 'A and B', the definition will be true of both and yet of neither of them; suppose, e.g. justice to be defined as 'temperance and courage.' For if of two persons each has one of the two only, both and yet neither will be just: for both together have justice, and yet each singly fails to have it. Even if the situation here described does not so far appear very absurd because of the occurrence of this kind of thing in other cases also (for it is quite possible for two men to have a mina between them, though neither of them has it by himself), yet least that they should have contrary attributes surely seems quite absurd; and yet this will follow if the one be temperate and yet a coward, and the other, though brave, be a profligate; for then both will exhibit both justice and injustice: for if justice be temperance and bravery, then injustice will be cowardice and profligacy. In general, too, all the ways of showing that the whole is not the

same as the sum of its parts are useful in meeting the type just described; for a man who defines in this way seems to assert that the parts are the same as the whole. The arguments are particularly appropriate in cases where the process of putting the parts together is obvious, as in a house and other things of that sort: for there, clearly, you may have the parts and yet not have the whole, so that parts and whole cannot be the same.

Topics: If a man has defined an object as 'A B', the first thing to be said is that 'A B' means the same either as 'A and B', or as the 'product of A and B.' for 'honey water' means either the honey and the water, or the 'drink made of honey and water'. If, then, he admits that 'A B' is B' is the same as either of these two things, the same criticisms will apply as have already been given for meeting each of them. Moreover, distinguish between the different senses in which one thing may be said to be ' ' another, and see if there is none of them in which A could be said to exist ' B.' Thus e.g. supposing the expression to mean that they exist either in some identical thing capable of containing them (as e.g. justice and courage are found in the soul), or else in the same place or in the same time, and if this be in no way true of the A and B in question, clearly the definition rendered could not hold of anything, as there is no possible way in which A can exist B'. If, however, among the various senses above distinguished, it be true that A and B are each found in the same time as the other, look and see if possibly the two are not used in the same relation. Thus e.g. suppose courage to have been defined as 'daring with right reasoning': here it is possible that the person exhibits daring in robbery, and right reasoning in regard to the means of health: but he may have 'the former quality the latter' at the same time, and not as yet be courageous! Moreover, even though both be used in the same relation as well, e.g. in relation to medical treatment (for a man may exhibit both daring and right reasoning in respect of medical treatment), still, none the less, not even this combination of 'the one the other 'makes him 'courageous'. For the two must not relate to any casual object that is the same, any more than each to a different object; rather, they must relate to the function of courage, e.g. meeting the perils of war, or whatever is more properly speaking its function than this.

Topics: Some definitions rendered in this form fail to come under the aforesaid division at all, e.g. a definition of anger as 'pain with a consciousness of being slighted'. For what this means to say is that it is because of a consciousness of this sort that the pain occurs; but to occur 'because of' a thing is not the same as to occur ' a thing' in any of its aforesaid senses.

Topics: Again, if he have described the whole compounded as the 'composition' of these things (e.g. 'a living creature' as a 'composition of soul and body'), first of all see whether he has omitted to state the kind of composition, as (e.g.) in a definition of 'flesh' or 'bone' as the 'composition of fire, earth, and air'. For it is not enough to say it is a composition, but you should also go on to define the kind of composition: for these things do not form flesh irrespective of the manner of their composition, but when compounded in one way they form flesh, when in another, bone. It appears, moreover, that neither of the aforesaid substances is the same as a 'composition' at all: for a composition always has a decomposition as its contrary, whereas neither of the aforesaid has any contrary. Moreover, if it is equally probable that every compound is a composition or else that none is, and every kind of living creature, though a compound, is never a composition, then no other compound could be a composition either.

Topics: Again, if in the nature of a thing two contraries are equally liable to occur, and the thing has been defined through the one, clearly it has not been defined; else there will be more than one definition of the same thing; for how is it any more a definition to define it through this one than through the other, seeing that both alike are naturally liable to occur in it? Such is the definition of the soul, if defined as a substance capable of receiving knowledge: for it has a like capacity for receiving ignorance.

Topics: Also, even when one cannot attack the definition as a whole for lack of acquaintance with the whole, one should attack some part of it, if one knows that part and sees it to be incorrectly rendered: for if the part be demolished, so too is the whole definition. Where, again, a definition is obscure, one should first of all correct and reshape it in order to make some part of it clear and get a handle for attack, and then proceed to examine it. For the answerer is bound either to accept the sense as taken by the questioner, or else himself to explain clearly whatever it is that his definition means. Moreover, just as in the assemblies the ordinary practice is to move an emendation of the existing law and, if the emendation is better, they repeal the existing law, so one ought to do in the case of definitions as well: one ought oneself to propose a second definition: for if it is seen to be better, and more indicative of the object defined, clearly the definition already laid down will have been demolished, on the principle that there cannot be more than one definition of the same thing.

Topics: In combating definitions it is always one of the chief elementary principles to take by oneself a happy shot at a definition of the object before one, or to adopt some correctly expressed definition. For one is bound, with the model (as it were) before one's eyes, to discern both any shortcoming in any features that the definition ought to have, and also any superfluous addition, so that one is better supplied with lines of attack.

Topics: As to definitions, then, let so much suffice.

Topics: Such is the number of the commonplace rules that relate to 'sameness'. It is clear from what has been said that all the destructive commonplaces relating to sameness are useful also in questions of definition, as was said before: 'for if what is signified by the term and by the expression be not the same, clearly the expression rendered could not be a definition. None of the constructive commonplaces, on the other hand, helps in the matter of definition; for it is not enough to show the sameness of content between the expression and the term, in order to establish that the former is a definition, but a definition must have also all the other characters already announced.

Topics: This then is the way, and these the arguments, whereby the attempt to demolish a definition should always be made. If, on the other hand, we desire to establish one, the first thing to observe is that few if any who engage in discussion arrive at a definition by reasoning: they always assume something of the kind as their starting points—both in geometry and in arithmetic and the other studies of that kind. In the second place, to say accurately what a definition is, and how it should be given, belongs to another inquiry. At present it concerns us only so far as is required for our present purpose, and accordingly we need only make the bare statement that to reason to a thing's definition and essence is quite possible. For if a definition is an expression signifying the essence of the thing and the predicates contained therein ought also to be the only ones which are predicated of the thing in the category of essence; and genera and differentiae are so predicated in that

category: it is obvious that if one were to get an admission that so and so are the only attributes predicated in that category, the expression containing so and so would of necessity be a definition; for it is impossible that anything else should be a definition, seeing that there is not anything else predicated of the thing in the category of essence.

Topics: That a definition may thus be reached by a process of reasoning is obvious. The means whereby it should be established have been more precisely defined elsewhere, but for the purposes of the inquiry now before us the same commonplace rules serve. For we have to examine into the contraries and other opposites of the thing, surveying the expressions used both as wholes and in detail: for if the opposite definition defines that opposite term, the definition given must of necessity be that of the term before us. Seeing, however, that contraries may be conjoined in more than one way, we have to select from those contraries the one whose contrary definition seems most obvious. The expressions, then, have to be examined each as a whole in the way we have said, and also in detail as follows. First of all, see that the genus rendered is correctly rendered; for if the contrary thing be found in the contrary genus to that stated in the definition, and the thing before you is not in that same genus, then it would clearly be in the contrary genus: for contraries must of necessity be either in the same genus or in contrary genera. The differentiae, too, that are predicated of contraries we expect to be contrary, e.g. those of white and black, for the one tends to pierce the vision, while the other tends to compress it. So that if contrary differentiae to those in the definition are predicated of the contrary term, then those rendered in the definition would be predicated of the term before us. Seeing, then, that both the genus and the differentiae have been rightly rendered, clearly the expression given must be the right definition. It might be replied that there is no necessity why contrary differentiae should be predicated of contraries, unless the contraries be found within the same genus: of things whose genera are themselves contraries it may very well be that the same differentia is used of both, e.g. of justice and injustice; for the one is a virtue and the other a vice of the soul: 'of the soul', therefore, is the differentia in both cases, seeing that the body as well has its virtue and vice. But this much at least is true, that the differentiae of contraries are either contrary or else the same. If, then, the contrary differentia to that given be predicated of the contrary term and not of the one in hand, clearly the differentia stated must be predicated of the latter. Speaking generally, seeing that the definition consists of genus and differentiae, if the definition of the contrary term be apparent, the definition of the term before you will be apparent also: for since its contrary is found either in the same genus or in the contrary genus, and likewise also the differentiae predicated of opposites are either contrary to, or the same as, each other, clearly of the term before you there will be predicated either the same genus as of its contrary, while, of its differentiae, either all are contrary to those of its contrary, or at least some of them are so while the rest remain the same; or, vice versa, the differentiae will be the same and the genera contrary; or both genera and differentiae will be contrary. And that is all; for that both should be the same is not possible; else contraries will have the same definition.

Topics: Moreover, look at it from the point of view of its inflexions and coordinates. For genera and definitions are bound to correspond in either case. Thus if forgetfulness be the loss of knowledge, to forget is to lose knowledge, and to have forgotten is to have lost knowledge. If, then, any one whatever of these is agreed to, the others must of necessity be agreed to as well. Likewise, also, if destruction is the decomposition of the thing's essence,

then to be destroyed is to have its essence decomposed, and 'destructively' means 'in such a way as to decompose its essence'; if again 'destructive' means 'apt to decompose something's essence', then also 'destruction' means 'the decomposition of its essence'. Likewise also with the rest: an admission of any one of them whatever, and all the rest are admitted too.

Topics: Moreover, look at it from the point of view of things that stand in relations that are like each other. For if 'healthy' means 'productive of health', 'vigorous' too will mean 'productive of vigour', and 'useful' will mean 'productive of good.' For each of these things is related in like manner to its own peculiar end, so that if one of them is defined as 'productive of' that end, this will also be the definition of each of the rest as well.

Topics: Moreover, look at it from the point of and like degrees, in all the ways in which it is possible to establish a result by comparing two and two together. Thus if A defines A better than B defines and B is a definition of so too is A of A. Further, if A's claim to define A is like B's to define B, and B defines B, then A too defines A. This examination from the point of view of greater degrees is of no use when a single definition is compared with two things, or two definitions with one thing; for there cannot possibly be one definition of two things or two of the same thing.

Topics: The most handy of all the commonplace arguments are those just mentioned and those from co-ordinates and inflexions, and these therefore are those which it is most important to master and to have ready to hand: for they are the most useful on the greatest number of occasions. Of the rest, too, the most important are those of most general application: for these are the most effective, e.g. that you should examine the individual cases, and then look to see in the case of their various species whether the definition applies. For the species is synonymous with its individuals. This sort of inquiry is of service against those who assume the existence of Ideas, as has been said before.' Moreover see if a man has used a term metaphorically, or predicated it of itself as though it were something different. So too if any other of the commonplace rules is of general application and effective, it should be employed.

Topics: That it is more difficult to establish than to overthrow a definition, is obvious from considerations presently to be urged. For to see for oneself, and to secure from those whom one is questioning, an admission of premises of this sort is no simple matter, e.g. that of the elements of the definition rendered the one is genus and the other differentia, and that only the genus and differentiae are predicated in the category of essence. Yet without these premises it is impossible to reason to a definition; for if any other things as well are predicated of the thing in the category of essence, there is no telling whether the formula stated or some other one is its definition, for a definition is an expression indicating the essence of a thing. The point is clear also from the following: It is easier to draw one conclusion than many. Now in demolishing a definition it is sufficient to argue against one point only (for if we have overthrown any single point whatsoever, we shall have demolished the definition); whereas in establishing a definition, one is bound to bring people to the view that everything contained in the definition is attributable. Moreover, in establishing a case, the reasoning brought forward must be universal: for the definition put forward must be predicated of everything of which the term is predicated, and must moreover be convertible, if the definition rendered is to be peculiar to the subject. In overthrowing a view, on the other hand, there is no longer any necessity to show one's point

universally: for it is enough to show that the formula is untrue of any one of the things embraced under the term.

Topics: Further, even supposing it should be necessary to overthrow something by a universal proposition, not even so is there any need to prove the converse of the proposition in the process of overthrowing the definition. For merely to show that the definition fails to be predicated of every one of the things of which the term is predicated, is enough to overthrow it universally: and there is no need to prove the converse of this in order to show that the term is predicated of things of which the expression is not predicated. Moreover, even if it applies to everything embraced under the term, but not to it alone, the definition is thereby demolished.

Topics: The case stands likewise in regard to the property and genus of a term also. For in both cases it is easier to overthrow than to establish. As regards the property this is clear from what has been said: for as a rule the property is rendered in a complex phrase, so that to overthrow it, it is only necessary to demolish one of the terms used, whereas to establish it is necessary to reason to them all. Then, too, nearly all the other rules that apply to the definition will apply also to the property of a thing. For in establishing a property one has to show that it is true of everything included under the term in question, whereas to overthrow one it is enough to show in a single case only that it fails to belong: further, even if it belongs to everything falling under the term, but not to that only, it is overthrown in this case as well, as was explained in the case of the definition. In regard to the genus, it is clear that you are bound to establish it in one way only, viz. by showing that it belongs in every case, while of overthrowing it there are two ways: for if it has been shown that it belongs either never or not in a certain case, the original statement has been demolished. Moreover, in establishing a genus it is not enough to show that it belongs, but also that it belongs as genus has to be shown; whereas in overthrowing it, it is enough to show its failure to belong either in some particular case or in every case. It appears, in fact, as though, just as in other things to destroy is easier than to create, so in these matters too to overthrow is easier than to establish.

Topics: It is clear also that the easiest thing of all is to overthrow a definition. For on account of the number of statements involved we are presented in the definition with the greatest number of points for attack, and the more plentiful the material, the quicker an argument comes: for there is more likelihood of a mistake occurring in a large than in a small number of things. Moreover, the other rules too may be used as means for attacking a definition: for if either the formula be not peculiar, or the genus rendered be the wrong one, or something included in the formula fail to belong, the definition is thereby demolished. On the other hand, against the others we cannot bring all of the arguments drawn from definitions, nor yet of the rest: for only those relating to accidental attributes apply generally to all the aforesaid kinds of attribute. For while each of the aforesaid kinds of attribute must belong to the thing in question, yet the genus may very well not belong as a property without as yet being thereby demolished. Likewise also the property need not belong as a genus, nor the accident as a genus or property, so long as they do belong. So that it is impossible to use one set as a basis of attack upon the other except in the case of definition. Clearly, then, it is the easiest of all things to demolish a definition, while to establish one is the hardest. For there one both has to establish all those other points by reasoning (i.e. that the attributes stated belong, and that the genus rendered is the true

genus, and that the formula is peculiar to the term), and moreover, besides this, that the formula indicates the essence of the thing; and this has to be done correctly.

Topics: One should also, wherever possible, secure the universal premise by a definition relating not to the precise terms themselves but to their co-ordinates; for people deceive themselves, whenever the definition is taken in regard to a co-ordinate, into thinking that they are not making the admission universally. An instance would be, supposing one had to secure the admission that the angry man desires vengeance on account of an apparent slight, and were to secure this, that 'anger' is a desire for vengeance on account of an apparent slight: for, clearly, if this were secured, we should have universally what we intend. If, on the other hand, people formulate propositions relating to the actual terms themselves, they often find that the answerer refuses to grant them because on the actual term itself he is readier with his objection, e.g. that the 'angry man' does not desire vengeance, because we become angry with our parents, but we do not desire vengeance on them. Very likely the objection is not valid; for upon some people it is vengeance enough to cause them pain and make them sorry; but still it gives a certain plausibility and air of reasonableness to the denial of the proposition. In the case, however, of the definition of 'anger' it is not so easy to find an objection.

Topics: There are certain hypotheses upon which it is at once difficult to bring, and easy to stand up to, an argument. Such (e.g.) are those things which stand first and those which stand last in the order of nature. For the former require definition, while the latter have to be arrived at through many steps if one wishes to secure a continuous proof from first principles, or else all discussion about them wears the air of mere sophistry: for to prove anything is impossible unless one begins with the appropriate principles, and connects inference with inference till the last are reached. Now to define first principles is just what answerers do not care to do, nor do they pay any attention if the questioner makes a definition: and yet until it is clear what it is that is proposed, it is not easy to discuss it. This sort of thing happens particularly in the case of the first principles: for while the other propositions are shown through these, these cannot be shown through anything else: we are obliged to understand every item of that sort by a definition. The inferences, too, that lie too close to the first principle are hard to treat in argument: for it is not possible to bring many arguments in regard to them, because of the small number of those steps, between the conclusion and the principle, whereby the succeeding propositions have to be shown. The hardest, however, of all definitions to treat in argument are those that employ terms about which, in the first place, it is uncertain whether they are used in one sense or several, and, further, whether they are used literally or metaphorically by the definer. For because of their obscurity, it is impossible to argue upon such terms; and because of the impossibility of saying whether this obscurity is due to their being used metaphorically, it is impossible to refute them.

Topics: In general, it is safe to suppose that, whenever any problem proves intractable, it either needs definition or else bears either several senses, or a metaphorical sense, or it is not far removed from the first principles; or else the reason is that we have yet to discover in the first place just this—in which of the aforesaid directions the source of our difficulty lies: when we have made this clear, then obviously our business must be either to define or to distinguish, or to supply the intermediate premises: for it is through these that the final conclusions are shown.

Topics: It often happens that a difficulty is found in discussing or arguing a given position because the definition has not been correctly rendered: e.g. 'Has one thing one contrary or many?': here when the term 'contraries' has been properly defined, it is easy to bring people to see whether it is possible for the same thing to have several contraries or not: in the same way also with other terms requiring definition. It appears also in mathematics that the difficulty in using a figure is sometimes due to a defect in definition; e.g. in proving that the line which cuts the plane parallel to one side divides similarly both the line which it cuts and the area; whereas if the definition be given, the fact asserted becomes immediately clear: for the areas have the same fraction subtracted from them as have the sides: and this is the definition of 'the same ratio'. The most primary of the elementary principles are without exception very easy to show, if the definitions involved, e.g. the nature of a line or of a circle, be laid down; only the arguments that can be brought in regard to each of them are not many, because there are not many intermediate steps. If, on the other hand, the definition of the starting-points be not laid down, to show them is difficult and may even prove quite impossible. The case of the significance of verbal expressions is like that of these mathematical conceptions.

Topics: Before maintaining either a thesis or a definition the answerer should try his hand at attacking it by himself; for clearly his business is to oppose those positions from which questioners demolish what he has laid down.

Topics: It is best to know by heart arguments upon those questions which are of most frequent occurrence, and particularly in regard to those propositions which are ultimate: for in discussing these answerers frequently give up in despair. Moreover, get a good stock of definitions: and have those of familiar and primary ideas at your fingers' ends: for it is through these that reasonings are effected. You should try, moreover, to master the heads under which other arguments mostly tend to fall. For just as in geometry it is useful to be practised in the elements, and in arithmetic to have the multiplication table up to ten at one's fingers' ends—and indeed it makes a great difference in one's knowledge of the multiples of other numbers too—likewise also in arguments it is a great advantage to be well up in regard to first principles, and to have a thorough knowledge of premises at the tip of one's tongue. For just as in a person with a trained memory, a memory of things themselves is immediately caused by the mere mention of their loci, so these habits too will make a man readier in reasoning, because he has his premises classified before his mind's eye, each under its number. It is better to commit to memory a premise of general application than an argument: for it is difficult to be even moderately ready with a first principle, or hypothesis.

On Interpretation:

On Interpretation: There can be no affirmation or denial without a verb; for the expressions 'is', 'will be', 'was', 'is coming to be', and the like are verbs according to our definition, since besides their specific meaning they convey the notion of time. Thus the primary affirmation and denial are 'as follows: 'man is', 'man is not'. Next to these, there are the propositions: 'not-man is', 'not-man is not'. Again we have the propositions: 'every man is', 'every man is not', 'all that is not-man is', 'all that is not-man is not'. The same classification holds good with regard to such periods of time as lie outside the present.

On Interpretation: Thus, in the case of those predications which have within them no contradiction when the nouns are expanded into definitions, and wherein the predicates belong to the subject in their own proper sense and not in any indirect way, the individual may be the subject of the simple propositions as well as of the composite. But in the case of that which is not, it is not true to say that because it is the object of opinion, it is; for the opinion held about it is that it is not, not that it is.

Poetics

Poetics: A Sentence or Phrase is a composite significant sound, some at least of whose parts are in themselves significant; for not every such group of words consists of verbs and nouns—‘the definition of man,’ for example—but it may dispense even with the verb. Still it will always have some significant part, as ‘in walking,’ or ‘Cleon son of Cleon.’ A sentence or phrase may form a unity in two ways—either as signifying one thing, or as consisting of several parts linked together. Thus the Iliad is one by the linking together of parts, the definition of man by the unity of the thing signified.

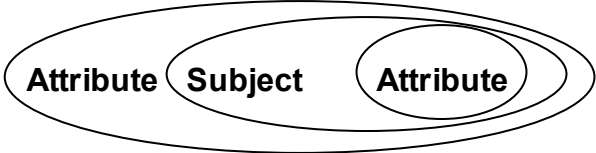
Rhetoric

Rhetoric: Language is composed of nouns and verbs. Nouns are of the various kinds considered in the treatise on Poetry. Strange words, compound words, and invented words must be used sparingly and on few occasions: on what occasions we shall state later. The reason for this restriction has been already indicated: they depart from what is suitable, in the direction of excess. In the language of prose, besides the regular and proper terms for things, metaphorical terms only can be used with advantage. This we gather from the fact that these two classes of terms, the proper or regular and the metaphorical—these and no others—are used by everybody in conversation. We can now see that a good writer can produce a style that is distinguished without being obtrusive, and is at the same time clear, thus satisfying our definition of good oratorical prose. Words of ambiguous meaning are chiefly useful to enable the sophist to mislead his hearers. Synonyms are useful to the poet, by which I mean words whose ordinary meaning is the same, e.g. ‘porheueseai’ (advancing) and ‘badizein’ (proceeding); these two are ordinary words and have the same meaning.

Appendix A Definitions

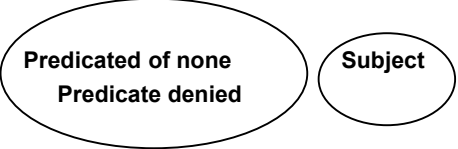
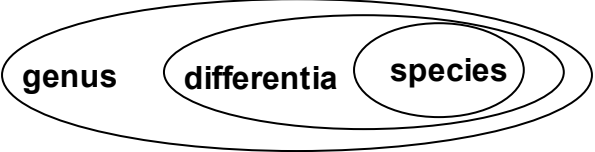
Aristotle was a lover of synonyms, but not even he could keep from making mistakes in using them.

Word	Definition
Accent	On Sophistical Refutations: for the lowering or raising of the voice upon a phrase is thought not to alter its meaning-with any phrase, or not with many..
Accident	Topics: An 'accident' is (i) something which, though it is none of the foregoing—i.e. neither a definition nor a property nor a genus yet belongs to the thing. (predicated of)
Affirmation	On Interpretation: An affirmation is a positive assertion of something about something. ~ every affirmation has an opposite denial, and similarly every denial an opposite affirmation.
Ambiguity	On Sophistical Refutations: duplicity of meaning of terms, duplicity between subject and object, duplicity by tense reference.
Amphiboly	On Sophistical Refutations: Appears to be subject object confusion.
Aporeme	Topics: is an inference that reasons dialectically to a contradiction.
Arguments	On Sophistical Refutations: Of arguments in dialogue form there are four classes: Didactic, Dialectical, Examination-arguments, and Contentious arguments. <i>Didactic</i> arguments are those that reason from the principles appropriate to each subject and not from the opinions held by the answerer (for the learner should take things on trust): <i>dialectical</i> arguments are those that reason from premises generally accepted, to the contradictory of a given thesis: <i>examination-arguments</i> are those that reason from premises which are accepted by the answerer and which any one who pretends to possess knowledge of the subject is bound to know-in what manner, has been defined in another treatise: <i>contentious</i> arguments are those that reason or appear to reason to a conclusion from premisses that appear to be generally accepted but are not so.
Argument, aims	On Sophistical Refutations: First we must grasp the number of aims entertained by those who argue as competitors and rivals to the death. These are five in number, <i>refutation</i> , <i>fallacy</i> , <i>paradox</i> , <i>solecism</i> , and fifthly to reduce the opponent in the discussion to <i>babbling</i> .
Atomic	Posterior Analytics: I call 'atomic' connections or disconnections which involve no intermediate term; since in that case the connection or disconnection will not be mediated by something other than the terms themselves.

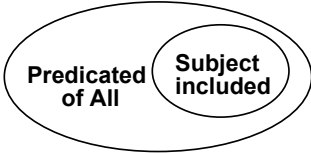
Word	Definition
	<p>Posterior Analytics: If, on the other hand, neither A nor B has a genus and A does not inhere in B, this disconnection must be atomic.</p>
Attribute	<p>Posterior Analytics: ‘true in every instance’ what is truly predicable of all instances—not of one to the exclusion of others—and at all times;</p> <p>Posterior Analytics: Essential attributes are (1) such as belong to their subject as elements in its essential nature (2) such that, while they belong to certain subjects, the subjects to which they belong are contained in the attribute’s own defining formula.</p> <p>Posterior Analytics: An attribute belongs commensurately and universally to a subject when it can be shown to belong to any random instance of that subject and when the subject is the first thing to which it can be shown to belong.</p> <p>Posterior Analytics: for essential attributes are either elements in the essential nature of their subjects, or contain their subjects as elements in their own essential nature.</p> 
Axiom	<p>Posterior Analytics: I call an immediate basic truth of syllogism ~ which the pupil must know if he is to learn anything whatever is an axiom. I call it an axiom because there are such truths and we give them the name of axioms par excellence.</p>
Babbling	<p>On Sophistical Refutations: to constrain him to repeat himself a number of times (This is in reference to a definition, when a word or its synonym is used to define itself. Since one can plug a definition in place of a word, such definitions end up being infinitely recursive.)</p>
Cause	<p>Posterior Analytics: (1) the definable form, (2) an antecedent which necessitates a consequent, (3) the efficient cause, (4) the final cause.</p> <p>Metaphysics: In one of these we mean the substance, i.e. the essence (for the ‘why’ is reducible finally to the definition, and the ultimate ‘why’ is a cause and principle); in another the matter or substratum, in a third the source of the change, and in a fourth the cause opposed to this, the purpose and the good (for this is the end of all generation and change).</p> <p>Note: 1) What is the primary cause of all being. The cause of the primary elements? 2) What is the cause of the change of things,</p>

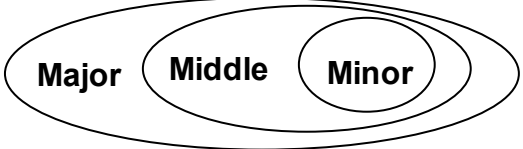
Word	Definition
	i.e., how to things interact.
Coincidental	Posterior Analytics: Things, then, not predicated of a subject I call essential; things predicated of a subject I call accidental or 'coincidental'.
Complete	Metaphysics: (1) that outside which it is not possible to find any, even one, of its parts;
Convertible	Prior Analytics: e.g. if no pleasure is good, then no good will be pleasure This is expressed mathematically as $-(A = B) = -(B = A)$ in other words "no" is not an adjectival to either term, and is really another means of expressing $(A \neq B) = (B \neq A)$. It is a common mistake of logicians and grammarians to mistake the "no" as being adjectival, that is a quantifier.
Contradiction	Posterior Analytics: A contradiction is an opposition which of its own nature excludes a middle. The part of a contradiction which conjoins a predicate with a subject is an affirmation; the part disjoining them is a negation. Metaphysics: But on the other hand there cannot be an intermediate between contradictories, but of one subject we must either affirm or deny any one predicate.
Definition	Posterior Analytics: Definition is a 'thesis' or a 'laying something down' Topics: A 'definition' is a phrase signifying a thing's essence. It is rendered in the form either of a phrase in lieu of a term, or of a phrase in lieu of another phrase. ~ Argument about definitions is mostly concerned with questions of sameness and difference. Topics: The definition consists of genus and differentiae. Topics: Or again, people sometimes define night as a 'shadow on the earth', or an earthquake as a movement of the earth', or a cloud as 'condensation of the air', or a wind as a 'movement of the air'; whereas they ought to specify as well quantity, quality, place, and cause. Likewise, also, in other cases of the kind: for by omitting any differentiae whatever he fails to state the essence of the term. Topics: Speaking generally, in definitions of this sort it happens that what the definer defines is in a sense more than one thing: for in defining knowledge, a man in a sense defines ignorance as well, and likewise also what has knowledge and what lacks it, and what it is to know and to be ignorant. For if the first be made clear, the others become in a certain sense clear as well. Topics: consists of genus and differentiae Posterior Analytics: Since definition is said to be the statement of a thing's nature, obviously one kind of definition will be a

Word	Definition
	<p>statement of the meaning of the name, or of an equivalent nominal formula.</p> <p>Posterior Analytics: definition is a formula exhibiting the cause of a thing's existence.</p> <p>Posterior Analytics: definition is (a) an indemonstrable statement of essential nature, or (b) a syllogism of essential nature differing from demonstration in grammatical form, or (c) the conclusion of a demonstration giving essential nature.</p> <p>Metaphysics: in definition also this is first; for in the definition of each term the definition of its substance must be present.</p> <p>Metaphysics: Clearly, then, only substance is definable.</p> <p>Metaphysics: Since a definition is a formula, and every formula has parts, and as the formula is to the thing, so is the part of the formula to the part of the thing,</p> <p>Metaphysics: But only the parts of the form are parts of the formula, and the formula is of the universal; for 'being a circle' is the same as the circle, and 'being a soul' the same as the soul. But when we come to the concrete thing, e.g. this circle, i.e. one of the individual circles, whether perceptible or intelligible (I mean by intelligible circles the mathematical, and by perceptible circles those of bronze and of wood),—of these there is no definition, but they are known by the aid of intuitive thinking or of perception; and when they pass out of this complete realization it is not clear whether they exist or not; but they are always stated and recognized by means of the universal formula. But matter is unknowable in itself. And some matter is perceptible and some intelligible, perceptible matter being for instance bronze and wood and all matter that is changeable, and intelligible matter being that which is present in perceptible things not quâ perceptible, i.e. the objects of mathematics.</p> <p>Metaphysics: Another question is naturally raised, viz. what sort of parts belong to the form and what sort not to the form, but to the concrete thing. Yet if this is not plain it is not possible to define any thing; for definition is of the universal and of the form.</p>
Definition-Equimembral	<p>Topics: A definition is said to be equimembral with the term defined when the number of the elements compounded in the latter is the same as the number of nouns and verbs in the definition. For the exchange in such cases is bound to be merely one of term for term, in the case of some if not of all, seeing that there are no more terms used now than formerly; whereas in a definition terms ought to be rendered by phrases, if possible in every case, or if not, in the majority. For at that rate, simple objects too could be defined by merely calling them by a different name, e.g. 'cloak' instead of 'doublet'.</p>

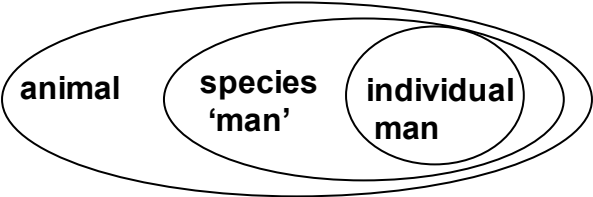
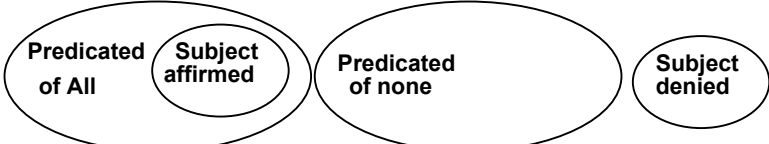
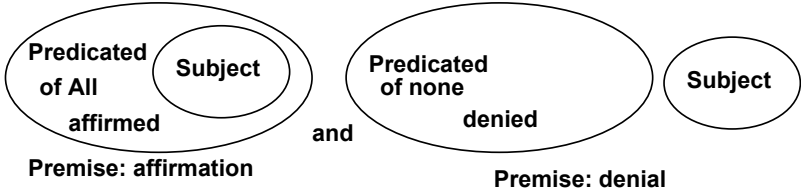
Word	Definition
Demonstration	<p>Posterior Analytics: By demonstration I mean a syllogism productive of scientific knowledge, a syllogism, that is, the grasp of which is <i>eo ipso</i> such knowledge.</p> <p>Posterior Analytics: demonstration is an inference from necessary premises.</p>
Denial	<p>On Interpretation: a denial a negative assertion of something about something. A is not B.</p> 
Dialectic	Topics: for dialectic is a process of criticism wherein lies the path to the principles of all inquiries
Dialectical Problem	Topics: A dialectical problem is a subject of inquiry that contributes either to choice and avoidance, or to truth and knowledge, and that either by itself, or as a help to the solution of some other such problem. It must, moreover, be something on which either people hold no opinion either way, or the masses hold a contrary opinion to the philosophers, or the philosophers to the masses, or each of them among themselves.
Dialectical Proposition	Topics: A dialectical proposition consists in asking something that is held by all men or by most men or by the philosophers, i.e. either by all, or by most, or by the most notable of these, provided it be not contrary to the general opinion. Dialectical propositions also include views which are like those generally accepted; also propositions which contradict the contraries of opinions that are taken to be generally accepted, and also all opinions that are in accordance with the recognized arts.
Dialectical Reasoning	Posterior Analytics: two forms of, syllogistic and inductive
Differentia	<p>Topics: the general view is that the differentia always expresses a quality.</p> <p>Topics: For the differentia is never an accidental attribute, any more than the genus is: for the differentia of a thing cannot both belong and not belong to it.</p> <p>Topics: for the differentiae are predicates of the species.</p> <p>Topics: for the differentia ought to be posterior to the genus, but prior to the species.</p> 

Word	Definition
	Topics: each of the differentiae imports its own genus, e.g. 'walking' and 'biped' import with them the genus 'animal'.
Epichireme	Topics: is a dialectical inference:
Essence	<p>Topics: We usually distinguish the expression that is proper to the essence of each particular thing by means of the differentiae that are proper to it.</p> <p>Topics: Likewise, also, in other cases of the kind: for by omitting any differentiae whatever he fails to state the essence of the term.</p> <p>Metaphysics: essence is said to be the substance of each thing.</p> <p>Metaphysics: Each thing itself, then, and its essence are one and the same in no merely accidental way, as is evident both from the preceding arguments and because to know each thing, at least, is just to know its essence, so that even by the exhibition of instances it becomes clear that both must be one.</p>
Essential	Posterior Analytics: that is essential which is not predicated of a subject other than itself: ~ Things, then, not predicated of a subject I call essential; things predicated of a subject I call accidental or 'coincidental'.
Fallacy	On Sophistical Refutations
False	Metaphysics: We call things false in this way, then,—either because they themselves do not exist, or because the appearance which results from them is that of something that does not exist.
Genus, genera, generic	<p>Topics: A 'genus' is what is predicated in the category of essence of a number of things exhibiting differences in kind. We should treat as predicates in the category of essence all such things as it would be appropriate to mention in reply to the question, 'What is the object before you?'</p> <p>Topics: The genus is predicated of all the members of the same species.</p> <div data-bbox="776 1331 1088 1486" data-label="Diagram"> <pre> graph LR Genus((Genus)) species((species)) species --- Genus </pre> </div> <p>Topics: The species partake of the genera, but not the genera of the species: for the species admits the definition of the genus, whereas the genus does not admit that of the species.</p> <p>Topics: 'True of S' is the only description used of the genus in relation to its species.~For the genus is always predicated of its species synonymously.</p> <p>Topics: For a genus is always divided by differentiae that are co-ordinate members of a division, as, for instance, by the terms 'walking', 'flying', 'aquatic', and 'biped'.</p> <p>Topics: For the differentia is never an accidental attribute, any</p>

Word	Definition
	<p>more than the genus is: for the differentia of a thing cannot both belong and not belong to it.</p> <p>Topics: for the one is the genus and the other the differentia, and the genus is always the most familiar term of all;</p> <p>Metaphysics: Now, since the so-called genera are universal and indivisible (for there is no definition of them), some say the genera are elements, and more so than the differentia, because the genus is more universal; for where the differentia is present, the genus accompanies it, but where the genus is present, the differentia is not always so.</p>
Hypothesis	Posterior Analytics: If a thesis assumes one part or the other of an enunciation, i.e. asserts either the existence or the non-existence of a subject, it is a hypothesis;
Impossible	Metaphysics: is that of which the contrary is of necessity true
Inclusion Or Non-Inclusion	<p>Prior Analytics: That one term should be included in another as in a whole is the same as for the other to be predicated of all of the first.</p> 
Induction	<p>Topics: Induction should proceed from individual cases to the universal and from the known to the unknown; and the objects of perception are better known, to most people if not invariably.</p> <p>Posterior Analytics: induction exhibiting the universal as implicit in the clearly known particular.</p>
Inheritance	<p>Posterior Analytics: essential attributes must inhere in their subjects of necessity.</p> <p>Posterior Analytics: I term 'commensurately universal' an attribute which belongs to every instance of its subject, and to every instance essentially and as such; from which it clearly follows that all commensurate universals inhere necessarily in their subjects. (This is Plato's Absolute. Every member of a class inherits the defining characteristic of that class, the class itself is the commensurate universal of that characteristic, meaning that it is the absolute measure, the upper bound or upper limit.)</p>
Intuition	Posterior Analytics: by rational intuition I mean an originaive source of scientific knowledge–nor of indemonstrable knowledge, which is the grasping of the immediate premise.
Knowledge	Metaphysics: (a) there is knowledge of each thing only when we know its essence.
Knowledge, Unqualified	Posterior Analytics: We suppose ourselves to possess unqualified scientific knowledge of a thing, as opposed to knowing it in the

Word	Definition
Scientific	accidental way in which the sophist knows, when we think that we know the cause on which the fact depends, as the cause of that fact and of no other, and, further, that the fact could not be other than it is.
Limit	Metaphysics: (1) the last point of each thing, i.e. the first point beyond which it is not possible to find any part, and the first point within which every part is;
Magnitude	Metaphysics: 'Quantum' means that which is divisible into two or more constituent parts of which each is by nature a 'one' and a 'this'. A quantum is a plurality if it is numerable, a magnitude if it is a measurable. 'Plurality' means that which is divisible potentially into non-continuous parts, 'magnitude' that which is divisible into continuous parts; of magnitude, that which is continuous in one dimension is length; in two breadth, in three depth. Of these, limited plurality is number, limited length is a line, breadth a surface, depth a solid.
Major, Minor, Middle	<p>Posterior Analytics: the major is predicated of the whole of the middle and the middle of the whole of the minor</p>  <p>This makes the predicate the major term, not the subject.</p>
Necessary	Posterior Analytics: Since the object of pure scientific knowledge cannot be other than it is, the truth obtained by demonstrative knowledge will be necessary.
Noun	On Interpretation: By a noun we mean a sound significant by convention, which has no reference to time, and of which no part is significant apart from the rest.
Part	Metaphysics: (1) (a) that into which a quantum can in any way be divided;
Philosopheme	Topics: is a demonstrative inference:
Philosophy, First and Second.	<p>Metaphysics: We answer that if there is no substance other than those which are formed by nature, natural science will be the first science; but if there is an immovable substance, the science of this must be prior and must be first philosophy, and universal in this way, because it is first. And it will belong to this to consider being <i>quâ</i> being—both what it is and the attributes which belong to it <i>quâ</i> being.</p> <p>Metaphysics: For it is for the sake of this that we are trying to determine the nature of perceptible substances as well, since in a sense the inquiry about perceptible substances is the work of physics, i.e. of second philosophy; for the physicist must come to</p>

Word	Definition
	<p>know not only about the matter, but also about the substance expressed in the formula, and even more than about the other. And in the case of definitions, how the elements in the formula are parts of the definition, and why the definition is one formula (for clearly the thing is one, but in virtue of what is the thing one, although it has parts?),—this must be considered later.</p>
Physics	<p>Metaphysics: For it is for the sake of this that we are trying to determine the nature of perceptible substances as well, since in a sense the inquiry about perceptible substances is the work of physics, i.e. of second philosophy; for the physicist must come to know not only about the matter, but also about the substance expressed in the formula, and even more than about the other. And in the case of definitions, how the elements in the formula are parts of the definition, and why the definition is one formula (for clearly the thing is one, but in virtue of what is the thing one, although it has parts?),—this must be considered later.</p>
plurality	<p>Metaphysics: A quantum is a plurality if it is numerable ‘Quantum’ means that which is divisible into two or more constituent parts of which each is by nature a ‘one’ and a ‘this’. A quantum is a plurality if it is numerable, a magnitude if it is a measurable. ‘Plurality’ means that which is divisible potentially into non-continuous parts, ‘magnitude’ that which is divisible into continuous parts; of magnitude, that which is continuous in one dimension is length; in two breadth, in three depth. Of these, limited plurality is number, limited length is a line, breadth a surface, depth a solid.</p>
Potency	<p>Metaphysics: (1) a source of movement or change,(2) the source of a thing’s being moved by another thing or by itself quâ other. (3) The capacity of performing this well or according to intention;(4) in the case of passivity—(5) The states in virtue of which things are absolutely impassive or unchangeable, or not easily changed for the worse, are called potencies; Metaphysics: Therefore the proper definition of the primary kind of potency will be ‘a source of change in another thing or in the same thing quâ other’.</p>
Predicate	<p>Categories: for the greater class is predicated of the lesser, so that all the differentiae of the predicate will be differentiae also of the subject.</p> <div data-bbox="781 1671 1089 1818" data-label="Diagram"> </div> <p>Categories: Everything except primary substances is either predicable of a primary substance or present in a primary</p>

Word	Definition
	<p>substance. This becomes evident by reference to particular instances which occur. 'Animal' is predicated of the species 'man', therefore of the individual man, for if there were no individual man of whom it could be predicated, it could not be predicated of the species 'man' at all.</p>  <p>Categories: for the species is to the genus as subject is to predicate, since the genus is predicated of the species, whereas the species cannot be predicated of the genus. Prior Analytics: That one term should be included in another as in a whole is the same as for the other to be predicated of all of the first. PRIOR1001 Posterior Analytics: we assume that every predicate can be either truly affirmed or truly denied of any subject</p>
<p>Predicating One Term Of All, Or None, Of Another</p>	<p>Prior Analytics: And we say that one term is predicated of all of another, whenever no instance of the subject can be found of which the other term cannot be asserted: 'to be predicated of none' must be understood in the same way.</p> 
<p>Premise</p>	<p>Prior Analytics: A premise then is a sentence affirming or denying one thing of another. This is either universal or particular or indefinite.</p>  <p>Posterior Analytics: premises of demonstrated knowledge must be true, primary, immediate, better known than and prior to the conclusion, which is further related to them as effect to cause. Posterior Analytics: I identify primary premise and basic truth. Prior Analytics: By indefinite that something does or does not belong to something else, without any mark to show whether it is universal or particular.</p>

Word	Definition
	<p>Topics: By necessary premises are meant those through which the actual reasoning is constructed. Those which are secured other than these are of four kinds; they serve either inductively to secure the universal premise being granted, or to lend weight to the argument, or to conceal the conclusion, or to render the argument more clear.</p> <p>Prior Analytics: By particular that something belongs to some or not to some or not to all of something else.</p> <div data-bbox="743 541 1128 695" data-label="Diagram"> <pre> graph LR A((Predicated of Some)) --- B((Subject particular)) </pre> </div> <p>Prior Analytics: By universal I mean the statement that something belongs to all or none of something else.</p>
Prime mover	Metaphysics: the prime mover also is a beginning absolutely.
Property	Topics: A 'property' is a predicate which does not indicate the essence of a thing, but yet belongs to that thing alone, and is predicated convertibly of it. ~ For no one calls anything a 'property' which may possibly belong to something else.
Proposition	<p>On Interpretation: Yet every sentence is not a proposition; only such are propositions as have in them either truth or falsity.</p> <p>On Interpretation: 1 The first class of simple propositions is the simple affirmation, the next, the simple denial; all others are only one by conjunction.</p> <p>2 Every proposition must contain a verb or the tense of a verb. The phrase which defines the species 'man', if no verb in present, past, or future time be added, is not a proposition. It may be asked how the expression 'a footed animal with two feet' can be called single; for it is not the circumstance that the words follow in unbroken succession that effects the unity. This inquiry, however, finds its place in an investigation foreign to that before us.</p> <p>3 We call those propositions single which indicate a single fact, or the conjunction of the parts of which results in unity: those propositions, on the other hand, are separate and many in number, which indicate many facts, or whose parts have no conjunction.</p> <p>4 Let us, moreover, consent to call a noun or a verb an expression only, and not a proposition, since it is not possible for a man to speak in this way when he is expressing something, in such a way as to make a statement, whether his utterance is an answer to a question or an act of his own initiation.</p>
Proposition, Immediate	Posterior Analytics: An immediate proposition is one which has no other proposition prior to it. A proposition is either part of an

Word	Definition
	enunciation, i.e. it predicates a single attribute of a single subject.
Quality	<p>Topics: is generally held to be the function of the differentia. ~ the general view is that the differentia always expresses a quality.</p> <p>Metaphysics: 'Quality' means (1) the differentia of the essence, (2) there is another sense in which it applies to the unmovable objects of mathematics, the sense in which the numbers have a certain quality, e.g. the composite numbers which are not in one dimension only (3) All the modifications of substances that move (e.g. heat and cold, whiteness and blackness, heaviness and lightness, and the others of the sort) in virtue of which, when they change, bodies are said to alter. (4) Quality in respect of virtue and vice, and in general, of evil and good.</p>
Quantum	Metaphysics: that which is divisible into two or more constituent parts of which each is by nature a 'one' and a 'this'. A quantum is a plurality if it is numerable, a magnitude if it is a measurable.
Refutation	<p>On Sophistical Refutations: refutation is reasoning involving the contradictory of the given conclusion.</p> <p>On Sophistical Refutations: There are two styles of refutation: for some depend on the language used, while some are independent of language. Those ways of producing the false appearance of an argument which depend on language are six in number: they are <i>ambiguity</i>, <i>amphiboly</i>, <i>combination</i>, <i>division</i> of words, <i>accent</i>, <i>form of expression</i>.</p>
Relative	Metaphysics: (1) as double to half, and treble to a third, and in general that which contains something else many times to that which is contained many times in something else, and that which exceeds to that which is exceeded; (2) as that which can heat to that which can be heated, and that which can cut to that which can be cut, and in general the active to the passive; (3) as the measurable to the measure, and the knowable to knowledge, and the perceptible to perception.
Rhetorical Arguments	Posterior Analytics: is in principle the same (as dialectical), since they use either example, a kind of induction, or enthymeme, a form of syllogism.
Same	Topics: is most used in a sense agreed on by every one when applied to what is numerically one.
Science	Posterior Analytics: For indeed every demonstrative science has three elements: (1) that which it posits, the subject genus whose essential attributes it examines; (2) the so-called axioms, which are primary premises of its demonstration; (3) the attributes, the meaning of which it assumes.
Sentence	On Interpretation: A sentence is a significant portion of speech, some parts of which have an independent meaning, that is to say, as an utterance, though not as the expression of any positive

Word	Definition
	<p>judgement.</p> <p>2 Every sentence has meaning, not as being the natural means by which a physical faculty is realized, but, as we have said, by convention. Yet every sentence is not a proposition; only such are propositions as have in them either truth or falsity.</p>
Solecism	On Sophistical Refutations: i.e. to make the answerer, in consequence of the argument, to use an ungrammatical expression; or, as a last resort, to make him repeat himself..
Sophism	Topics: is a contentious inference:
Species	Topics: a specific differentia, if added to the genus, always makes a species.
Subaltern	1. A subordinate.
Substance	<p>Metaphysics: Therefore that which is primarily, i.e. not in a qualified sense but without qualification, must be substance.</p> <p>Metaphysics: Now there are several senses in which a thing is said to be first; yet substance is first in every sense—(1) in definition, (2) in order of knowledge, (3) in time. For (3) of the other categories none can exist independently, but only substance. And (1) in definition also this is first; for in the definition of each term the definition of its substance must be present. And (2) we think we know each thing most fully, when we know what it is, e.g. what man is or what fire is, rather than when we know its quality, its quantity, or its place; since we know each of these predicates also, only when we know what the quantity or the quality is.</p> <p>Metaphysics: We have now outlined the nature of substance, showing that it is that which is not predicated of a stratum, but of which all else is predicated.</p> <p>Metaphysics: essence is said to be the substance of each thing.</p>
Substratum	Metaphysics: which we call its matter
Syllogism	<p>Prior Analytics: A syllogism is discourse in which, certain things being stated, something other than what is stated follows of necessity from their being so. I mean by the last phrase that they produce the consequence, and by this, that no further term is required from without in order to make the consequence necessary.</p> <p>Posterior Analytics: syllogism assuming an audience that accepts its premisses</p> <p>Posterior Analytics: in syllogism the unit is an immediate premise.</p> <p>Posterior Analytics: In syllogisms, then, which prove the inherence of an attribute, nothing falls outside the major term.</p>
Syllogism–Imperfect	Prior Analytics: a syllogism is imperfect, if it needs either one or more propositions, which are indeed the necessary consequences of the terms set down, but have not been expressly stated as

Word	Definition
	premises.
Syllogism–Perfect	Prior Analytics: I call that a perfect syllogism which needs nothing other than what has been stated to make plain what necessarily follows.
Synonym	Topics: For terms whose definition corresponding their common name is one and the same, are synonymous;
Term	Prior Analytics: I call that a term into which the premise is resolved, i.e. both the predicate and that of which it is predicated, ‘being’ being added and ‘not being’ removed, or vice versa.
Thesis	Topics: A ‘thesis’ is a supposition of some eminent philosopher that conflicts with the general opinion; e.g. the view that contradiction is impossible, as Antisthenes said; or the view of Heraclitus that all things are in motion; or that Being is one, as Melissus says. ~ A ‘thesis’ also is a problem, though a problem is not always a thesis, inasmuch as some problems are such that we have no opinion about them either way. Posterior Analytics: I call an immediate basic truth of syllogism a ‘thesis’ when, though it is not susceptible of proof by the teacher, yet ignorance of it does not constitute a total bar to progress on the part of the pupil:
Truth, basic	Posterior Analytics: A ‘basic truth’ in a demonstration is an immediate proposition. An immediate proposition is one which has no other proposition prior to it. A proposition is either part of an enunciation, i.e. it predicates a single attribute of a single subject.
Universal	Topics: It is by means of an induction of individuals in cases that are alike that we claim to bring the universal in evidence. Posterior Analytics: I term ‘commensurately universal’ an attribute which belongs to every instance of its subject, and to every instance essentially and as such; from which it clearly follows that all commensurate universals inhere necessarily in their subjects.
Verb	On Interpretation: 1 A verb is that which, in addition to its proper meaning, carries with it the notion of time. ~ 3 Moreover, a verb is always a sign of something said of something else, i.e. of something either predicable of or present in some other thing. On Interpretation: Verbs in and by themselves are substantival and have significance, for he who uses such expressions arrests the hearer’s mind, and fixes his attention; but they do not, as they stand, express any judgement, either positive or negative.
Whole	Metaphysics: (1) that from which is absent none of the parts

Appendix B

An Eight-Fold Path

One of the reasons that it is often difficult to remember or even follow Aristotle is that the model of what a sentence *is* is confused and contradictory in writings. Secondly he was a synonym freak and if one wants to try and follow him, one should build a table of synonyms. When it came to reasoning, Aristotle could not hold a candle to Plato. However, since Aristotle showed about the same degree of mental confusion as the common man, he became popular. However, Plato is often misread—for example in the Republic, his task was to put the most just people in the most unjust circumstances, and everyone ends up calling it his utopia. Wow, lots of poor readers. Reading Aristotle, I would have guessed he would misread it, he did not have to prove it.

The human bodies acquisition centers, those that support life by abstracting from things in the environment in order to sustain and promote this organism called man, abstract from a thing, either that things form, such as the ocular system, or that things material, such as the digestive system.

We name these abstractions. These abstractions are not things.

Now, suppose something stands before us, we abstract its form, and give that form a name. We abstract that things material, and we give that material a name. Now it stands to reason that the name of a thing is equal to the names of its various forms and material differences. A thing is material in form.

And so we have some consequences (I shaved them down for esthetics).

1) Definition is the preservation of the social convention that associates the name of a thing with the names of its various forms and material differences.

2) Predication is the inverse function of abstraction.

3) There are then two primitive naming conventions, 1) names of things, 2) names of things composed of the names of a things forms and material differences.

4) There are three primitive categories of names, names of things, names of forms, names of material differences.

5) There is one primitive form of unit sentences; Name = form and material, and two derivative forms Name = Name, Form and material = form and material.

Example: Red is a color. John is red. A color is a sensation.

It is clear that only one of those sentence types contain predicates (the first), the other two are synonyms. When Aristotle realizes the sentence type, he says that the terms are predicated synonymously, but I don't think you can call it predication since the structure is not abstractive, but equated.

6) Of the three categories of names, only one is defined, the other two are abstracted.

7) If form is abstracted, material must be supplied to make a thing. If material is abstracted then form must be applied to make a thing.

8) Description is a means by which to construct or lead one to a thing by which abstractions may be made in order that the naming convention may be preserved.

It would take a very exceptional reader to understand the fallout of these facts in regard to a long history of popular sages—dogmas and doctrines. However, it is upon this foundation that one can begin to construct a grammar, by determining how these names can and cannot be added together into common discourse containing many words. However, today, words are not truly conventional—perhaps when literacy is taken seriously, they will be.